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DEPARTMENT OF TRANSPORTATION

DEPARTMENT OF TRANSPORTATION

NOTICE TO CONTRACTORS,

PROPOSAL, SPECIAL PROVISIONS,

CONTRACT AND CONTRACT BOND

FOR

URBAN GRADING, AC SURFACING, CURB & GUTTER, STORM SEWER, SHARED USE PATH, SIDEWALK, LIGHTING

FEDERAL **PROJECT NO.** **P 6353(00)**
(PCN 08CU)

WESTERN AVENUE

IN MINNEHAHA COUNTY

March 5, 2025

NOTICE TO ALL BIDDERS

TO REPORT BID RIGGING ACTIVITIES, CALL: 1-800-424-9071

THE U.S. DEPARTMENT OF TRANSPORTATION (DOT) OPERATES THE ABOVE TOLL-FREE "HOTLINE" MONDAY THROUGH FRIDAY, 8:00 A.M. TO 5:00 P.M., EASTERN TIME. ANYONE WITH KNOWLEDGE OF POSSIBLE BID RIGGING, BIDDER COLLUSION, OR OTHER FRAUDULENT ACTIVITIES SHOULD USE THE "HOTLINE" TO REPORT SUCH ACTIVITIES.

THE "HOTLINE" IS PART OF THE DOT'S CONTINUING EFFORT TO IDENTIFY AND INVESTIGATE HIGHWAY CONSTRUCTION CONTRACT FRAUD AND ABUSE AND IS OPERATED UNDER THE DIRECTION OF THE DOT INSPECTOR GENERAL.

ALL INFORMATION WILL BE TREATED CONFIDENTIALLY, AND CALLER ANONYMITY WILL BE RESPECTED.

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PLANS, PROPOSALS AND ADDENDA

AFTER AWARD OF CONTRACT, THE LOW BIDDER WILL RECEIVE TEN (10) COMPLIMENTARY SETS OF PLANS, PROPOSALS, PROJECT Q & A FORUM, AND ADDENDA FOR FIELD AND OFFICE USE. AN ELECTRONIC COPY WILL ALSO BE PROVIDED. ANY ADDITIONAL COPIES REQUIRED WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.

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Project Number: P 6353(00)

Revised 8/16/18
PCN 08CU

NOTICE TO CONTRACTORS

Bid proposals for this project will be prepared, transmitted, and received electronically by the South Dakota Department of Transportation (SDDOT) via the South Dakota Electronic Bid System until 10 A.M. Central time, on February 19, 2025, at which time the SDDOT will open bids. All bids will be checked for qualifications with results posted on the SDDOT website. The South Dakota Transportation Commission will consider all bids at a scheduled Commission meeting.

The work for which proposals are hereby requested is to be completed within the following requirement(s):

FIELD WORK COMPLETION: **JUNE 26, 2026**

THE DBE GOAL FOR THIS PROJECT IS: **NOT SPECIFIED**

WORK TYPE FOR THIS PROJECT IS: **WORK TYPE 1 OR WORK TYPE 3 OR WORK TYPE 7**

Bidding package for the work may be obtained at:
http://apps.sd.gov/hc65bidletting/ebslettings1.aspx#no-back-button

An electronic version of the most recent version of the South Dakota Standard Specifications for Roads and Bridges may be obtained at https://dot.sd.gov/doing-business/contractors/standard-specifications/2015-standard-specifications

The electronic bid proposal must be submitted by a valid bidder as designated by their company's https://apps.sd.gov/HC65C2C/EBS/BidAdminAuthorizationForm.pdf. A bidding administrator will have privileges in the SDEBS to prepare bids, submit bids, and authorize additional company employees to prepare and submit bids. Additionally, a bidding administrator will be responsible for maintaining the list of authorized bidders for the company and will have the ability to add employees, remove employees, and set-up bidder identifications and passwords within the SDEBS. Bidding Administrator authorization will remain in full force and effect until written notice of termination of this authorization is sent by an Officer of the company and received by the Department.

A bidder identification and password, coupled with a company identification previously assigned by the Department, will serve as authentication that an individual is a valid bidder for the company.

Contact information to schedule a preconstruction meeting prior to commencing with the work on this project.

Harry Johnston
5316 W 60th St N
Sioux Falls, SD 57107
Phone: 605/367-5680

PROPOSAL Revised 8/10/11

SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION, STATE OF SOUTH DAKOTA:

Ladies / Gentlemen:

The following proposal is made on behalf of the undersigned and no others. It is in all respects fair and is made without collusion on the part of any other person, firm or corporation not appearing in the signature to this proposal.

The undersigned certifies that she / he has carefully examined the plans listed herein, the Specifications hereinbefore referred to, the Special Provisions and the form of contract, both of which are attached hereto. The undersigned further certifies that she / he has personally inspected the actual location of the work, together with the local sources of supply and that she / he understands the conditions under which the work is to be performed, or, that if she / he has not so inspected the actual location of the work, that she / he waives all right to plea any misunderstanding regarding the location of the work or the conditions peculiar to the same.

On the basis of the plans, Specifications, Special Provisions and form of contract proposed for use, the undersigned proposes to furnish all necessary machinery, tools, apparatus and other means of construction, to do all the work and furnish all the materials in the manner specified, to finish the entire project **within the contract time specified** and to accept as full compensation therefore the amount of the summation of the products of the actual quantities, as finally determined, multiplied by the unit prices bid.

The undersigned understands that the quantities as shown in the Bid Schedule are subject to increase or decrease, and hereby proposes to perform all quantities of work, as increased or decreased, in accordance with the provisions of the specifications, and subject to any applicable special provisions, and at the unit prices bid.

The undersigned understands that the "Total or Gross Amount Bid" as immediately hereinbefore set forth is not the final amount which will be paid if this proposal is accepted and the work done, but that such amount is computed for the purpose of comparison of the bids submitted and the determination of the amount of the performance bond.

The undersigned further proposes to perform all extra work that may be required on the basis provided in the specifications, and to give such work personal attention in order to see that it is economically performed.

The undersigned further proposes to both execute the contract agreement and to furnish a satisfactory performance bond, in accordance with the terms of the specifications, within twenty (20) calendar days after the date of Notice of Award from the South Dakota Department of Transportation that this proposal has been accepted.

CERTIFICATION REGARDING LOBBYING

I certify, to the best of my knowledge and belief, that: No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of a Federal contract, grant, loan, or cooperative agreement. If any funds other than Federal appropriated funds have been paid or will be paid to any of the above mentioned parties, the undersigned shall complete and submit Standard Form LLL, “Disclosure Form to Report Lobbying,” in accordance with its instructions.

The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty or not less than $10,000 and not more than $100,000 for each such failure.

REV 10/11/24

INDEX OF SPECIAL PROVISIONS

PROJECT NUMBER(S): P 6353(00) PCN: 08CU

TYPE OF WORK: URBAN GRADING, AC SURFACING, CURB & GUTTER, STORM SEWER, SHARED USE PATH, SIDEWALK, LIGHTING

COUNTY: MINNEHAHA

The following clauses have been prepared subsequent to the Standard Specifications for Roads and Bridges and refer only to the above described improvement, for which the following Proposal is made.

The Contractor's attention is directed to the need for securing from the Department of Environment & Natural Resources, Foss Building, Pierre, South Dakota, permission to remove water from public sources (lakes, rivers, streams, etc.). The Contractor should make his request as early as possible after receiving his contract, and insofar as possible at least 30 days prior to the date that the water is to be used.

Sara Garbe is the official in charge of the Sioux Falls Career Center for Minnehaha County.

THE FOLLOWING ITEMS ARE INCLUDED IN THIS PROPOSAL FORM:

Special Instructions to Bidders, dated 1/27/25.

Special Provision Regarding Combination Bids, dated 1/15/25.

Special Provision for Subletting of Contract, dated 2/6/25.

Special Provision for Traffic Control Supervisor, dated 12/3/25.

Special Provision for Durable Pavement Markings, dated 1/15/25.

Section 31 0505 Selective Demolition for Site Work
Section 31 2200 Grading
Section 31 2317 Trenching
Section 31 2319 Dewatering
Section 31 2500 Erosion and Sediment Control
Section 33 1118 Water Distribution
Section 33 3114 Sanitary Sewer
Section 33 4112 Storm Sewer

Special Provision for Steel Beam Guardrail AASHTO M 180 Designation, date 10/8/24.
Special Provision for Acknowledgment and Certification Regarding Article 3, Section 12 of the South Dakota Constitution, dated 8/24/23.
Special Provision for Buy America, dated 5/1/24.
Special Provision for Liability Insurance, dated 4/21/22.

Special Provision for Responsibility for Damage Claims, dated 4/21/22.
Special Provision for Restriction of Boycott of Israel, dated 1/31/20.
Special Provision for Contractor Administered Preconstruction Meeting, dated 12/18/19.
Fuel Adjustment Affidavit, DOT form 208 dated 7/15.
Standard Title VI Assurance, dated 3/1/16.
Special Provision For Disadvantaged Business Enterprise, dated 2/9/24.
Special Provision For EEO Affirmative Action Requirements on Federal and Federal-Aid Construction Contracts, dated 2/5/24.
Special Provision For Required Contract Provisions Federal-Aid Construction Contracts, Form FHWA 1273 (Rev. October 23, 2023), dated 10/18/23.
Required Contract Provisions Federal-Aid Construction Contracts, Form FHWA 1273 (Rev. 10/23/23).
Special Provision Regarding Minimum Wage on Federal-Aid Projects, dated 10/24/19.
Wage and Hour Division US Department of Labor Washington DC. - US Dept. of Labor Decision Number SD20230032, dated 3/10/23.
Special Provision for Supplemental Specifications to 2015 Standard Specifications for Roads and Bridges, dated 9/7/22.
Special Provision for Price Schedule for Miscellaneous Items, dated 12/6/23.

Special Provision Regarding Storm Water Discharge, dated 5/8/18.
General Permit for Storm Water Discharges Associated with Construction Activities, dated 4/1/18
https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/stormwater/StormWaterConstruction.aspx

P 6353(00), PCN 08CU
URBAN GRADING, PCC SURFACING, CURB & GUTTER, STORM SEWER, SHARED USE PATH, SIDEWALK, LIGHTING
WESTERN AVENUE

INSTRUCTIONS FOR BIDDERS

January 27, 2025

1) This Urban Grading, PCC Surfacing, Curb & Gutter, Storm Sewer, Shared Use Path, Sidewalk, Lighting Project will be let and awarded by the South Dakota Department of Transportation.

2) South Dakota Department of Transportation Standard Specifications for Roads and Bridges Sections 2 and 3 regarding letting and awarding of contracts shall be followed.

3) Bidders submitting a bid on this project shall also submit a bid for Project IM 0909(92)387 PCN 06G8, Minnehaha County. Award of these projects will be to the same bidder based on the total of the two projects.

4) A prospective bidder must request any explanation regarding the meaning or interpretation of the bidding package in adequate time to allow a Department reply to reach all prospective bidders before submission of final bid proposals. The bidder will contact the Department by submitting a request for explanation to the project Q&A forum.

5) All bid bonds shall be made out to the Department of Transportation

6) The contract completion date for this project will be the same as specified of Project Project IM 0909(92)387 PCN 06G8, Minnehaha County. Any delays in completing this contract will not be a basis for an extension of the contract completion time for PCN 06G8, Minnehaha County.

7) After award of contract, the Contractor shall furnish satisfactory proof of coverage of insurance. Copies of Certificates of Insurance shall be furnished to the Department of Transportation AND City of Hartford. The Contractor will be required to provide a performance bond in a sum equal to the total amount of the contract, in a form acceptable to the City. The performance bond shall remain in effect for a period of one year after the City considers the contract to be completed and accepted.

8) The contractor is required to schedule and conduct a preconstruction meeting that shall be held jointly with the preconstruction meeting for the state contract. Additionally the contractor is responsible for contacting the city for a list of required submittals upon receiving Notice of Award of the contract.

9) Construction engineering for this contract will be performed by the City of Hartford.

10) Payment for this Utilities project will be made to the Contractor by the City of Hartford.

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STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION REGARDING
COMBINATION BIDS

P 6353(00), PCN 08CU
URBAN GRADING, AC SURFACING, CURB & GUTTER, STORM SEWER, SHARED USE PATH, SIDEWALK, LIGHTING
MINNEHAHA COUNTY

JANUARY 15, 2025

Bidders submitting a bid on this project **MUST ALSO** submit a bid on project:

IM 0909(92)387, PCN 06G8
INTERSTATE HIGHWAY 90
INTERCHANGE RECONSTRUCTION, STRUCTURE (258' STEEL GIRDER BRIDGE), PCC SURFACING, SIDEWALK
MINNEHAHA COUNTY

Award of both projects will be to the same bidder based on the total of the two projects.

Work on PCN (06G8) CANNOT be used to meet the DBE Goal established for this project.

After award, the contracts will be administered as entirely separate contracts.

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STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION REGARDING
THE CITY PORTION FOR SUBLETTING

P 6353(00), PCN 08CU
MINNEHAHA COUNTY

FEBRUARY 6, 2025

This project is let in combination with State Project Number IM 0909(92)387 PCN 06G8. The provisions of section 8.1 of the specifications requiring the Contractor to perform work amounting to not less than 30% of the total contract cost with the Contractor's own organization will not apply to the work on this contract.

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STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
TRAFFIC CONTROL SUPERVISOR

PROJECT P 6353(00), PCN 08CU
MINNEHAHA COUNTY

DECEMBER 3, 2024

I. DESCRIPTION

This work consists of the Contractor providing a certified Traffic Control Supervisor (TCS) to oversee all traffic control operations including, but not limited to; vehicular traffic control, detour route traffic control, and pedestrian access route traffic control for the safety of workers and the traveling public.

II. MATERIALS

No material requirements.

III. CONSTRUCTION REQUIREMENTS

A. Certification: The TCS must be certified through the South Dakota AGC-DOT Traffic Control Supervisor Training and Certification program or the American Traffic Safety Services Association (ATSSA) Traffic Control Supervisor certification program and must have training and experience in the field of construction traffic control.

The Contractor will submit the name of the individual designated as the TCS to the Engineer prior to or during the preconstruction meeting for verification of qualifications by the Department's Operations Traffic Engineer.

B. Duties: Delete Section 634.3 E.5. of the specifications. The TCS will perform the following duties and responsibilities to the satisfaction of the Engineer:

1. The TCS will provide the name, phone number, and location of the TCS to the Department, SD Highway Patrol, county sheriff's office, and the local city police department.

2. The TCS is responsible for coordinating all temporary traffic control operations, including temporary traffic control operations needed for subcontractors and suppliers.

3. The TCS is responsible for implementing the project temporary traffic control plan. The TCS is also responsible for reviewing and, if needed, making recommendations to change the project temporary traffic control plan. Any change to the project temporary traffic control plan must be approved by the Engineer.

4. The TCS must be available as the 24 hour a day and 7 days a week contact responsible to ensure maintenance of temporary traffic control is performed, as needed.

5. The Contractor shall monitor and maintain all traffic control items. The Contractor is responsible for adjustments of traffic control items when traffic conditions change. A representative of the TCS or another employee of the Contractor may perform the routine maintenance of temporary traffic control devices. The TCS is responsible for any maintenance performed by other employees of the Contractor in accordance with Section III.B.2 duties for coordinating all temporary traffic control operations.

6. The TCS is responsible for and shall perform all required day time and night time inspections of all temporary traffic control devices on the project to verify the overall traffic control system is adequate and all devices are legible both during daylight hours and at night. This includes detour route signing. The inspections shall begin when the first traffic control sign or device is put into operation and end when the last traffic control sign or device is removed from operation. The TCS will provide the Engineer a written summary of each required day time and night time inspection. All inspections must ensure the temporary traffic control devices are clean, maintained, and functioning as intended.

   a. For night time inspections at the minimum frequency of once per week.

   b. For day time inspections at the minimum frequency of once per week.

7. In addition to the required day time and night time inspections, the TCS is required to be on-site at the work zone for the following, at a minimum:

   a. When requested by the Engineer and, in the sole discretion of the Engineer, there is a need requiring the attention of the TCS to address an issue with the current temporary traffic control devices or plan. Routine maintenance of the current temporary traffic control devices alone will not be considered as a need requiring the TCS to be on-site.

b. For major traffic shifts or phase changes.

c. After a storm or major event that has the potential to knock over or upend the temporary traffic control devices.

8. In conjunction with Section III.B.7.a and Section III.B.7.c of this special provision, the TCS is required to be on-site within a maximum of 4 hours of notification from the Engineer, or an alternate timeframe if mutually agreed upon by the Contractor and the Project Engineer. If there is an immediate safety concern or an immediate need to make an adjustment to any of the temporary traffic control devices, the Contractor will take measures to address the concern or need, to the satisfaction of the Engineer, prior to the TCS arriving on-site.

C. General: Temporary traffic control on the project will be furnished, maintained, and installed in accordance with Section 634 and the project plan notes and details.

IV. METHOD OF MEASUREMENT

Traffic Control Supervisor: Measurement for Traffic Control Supervisor will not be made.

V. BASIS OF PAYMENT

Traffic Control Supervisor: Traffic Control Supervisor will be paid for at the contract lump sum price. Payment will be full compensation for all costs associated with providing the Traffic Control Supervisor and performing all related duties.

Payment for Traffic Control Supervisor will be made as follows:

A. 20% of contract item lump sum price upon designation of certificated Traffic Control Supervisor.

B. 50% of contract item lump sum price when construction project is 25% completed.

C. 75% of contract item lump sum price when construction project is 50% completed.

D. 90% of contract item lump sum price when construction project is 75% completed.

E. 100% of contract item price when construction project is 100% completed and the Area Office has issued the Acceptance of Field Work in accordance with Section 5.16.

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STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
DURABLE PAVEMENT MARKINGS

PROJECT P 6353(00), PCN 08CU
MINNEHAHA COUNTY

JANUARY 15, 2025

I. DESCRIPTION

Durable pavement markings, for the purpose of the special provision, include epoxy and polyurea. Water base paint will not be considered a durable marking product.

This work will consist of grooving pavement for durable pavement marking and furnishing and applying durable pavement markings in accordance with the plans, this provision, and as directed by the Engineer.

II. MATERIALS

The Contractor will submit the type of material to be used at the preconstruction meeting prior to application of the durable pavement marking.

A. CERTIFICATIONS

The Contractor will provide the Engineer with a copy of the manufacturer's product data sheet, component certification, and instructions for material application at least 14 calendar days before application work begins. Whenever the manufacturer's recommendations are more stringent than these provisions, the manufacturer's recommendations will apply. The Contractor will provide the Engineer a copy of the certified batch test results, showing the product meets the following requirements, upon delivery of the product to the job site.

B. MATERIAL REQUIREMENTS

1. **Marking Material:** The Contractor will follow the manufacturer's mixing ratio. No solvents are to be given off to the environment upon application to a pavement surface. The components, when combined, will not contain or produce volatile solvents. If Type II epoxy pavement marking material is used, it will be completely free of TMPTA (Tri-Methyl Propane Tri-Acrylate) and other multi-functional monomers. All materials will be free of lead,

cadmium, mercury, hexavalent chromium, and other toxic heavy metals as defined by the United States Environmental Protection Agency.

a. Color: The pavement marking colors will meet the following:

White: The color will be within the Chromaticity coordinates listed in Tables 1 & 2 when tested in accordance with ASTM E1347 or ASTM E1349

Yellow: The color will match Federal Test Standard Number 595a, Color 13538 or will be within the Chromaticity coordinates listed in Tables 1 & 2 when tested in accordance with ASTM E1347 or ASTM E1349.

TABLE 1

Color	Chromaticity coordinates (corner points)								Y values %			
									With Glass Beads		Without Glass Beads	
	x	y	x	y	x	y	x	y	Min	Max	Min	Max
White	.355	.355	.305	.305	.285	.325	.335	.375	60	--	70	--
Yellow	.560	.440	.490	.510	.420	.440	.460	.400	30	--	35	--

TABLE 1 - Daytime Color Specification Limits for Pavement Markings Material with CIE 2° Standard Observer and 45/0 (0/45) Geometry and CIE D65 Standard Illuminant

TABLE 2

Color	Chromaticity coordinates (corner points)							
	1		**2**		**3**		**4**	
	x	**y**	**x**	**y**	**x**	**y**	**x**	**y**
White	.480	.410	.430	.380	.405	.405	.455	.435
Yellow	.575	.425	.508	.415	.473	.453	.510	.490

TABLE 2 - Nighttime Color Specification Limits for Pavement Marking Retroreflective Material with CIE 2° Standard Observer and Observation Angle = 1.05°, Entrance Angle = 88.76° (beta angle 2 and epsilon = 0°) and CIE Standard Illuminant A

b. Hardness: The type D durometer hardness of the material will not be less than 75 when tested in accordance with ASTM D2240 after the material has cured for 72 hours at 73°F ± 5°F.

c. Adhesion Capabilities: When tested in accordance with the American Concrete Institute Committee 503 testing procedure, the adhesion must be a minimum of 250 psi, or the failure of the system must take place in the substrate. The prepared specimens will be allowed to cure for 72 hours at 73°F ± 5°F.

d. **Weather Resistance:** Apply the mixed epoxy, both white and yellow, at 15 mils ± 1 mil thick to 3 inch x 6 inch aluminum panels. Do not apply beads to the epoxy sample. Expose the cured sample in an Environmental Test Chamber meeting the requirements of ASTM G154. Conduct the test for 80 hours at 122°F, alternating four-hour cycles of condensation and ultraviolet light. At the end of the exposure period, the material will show no substantial change in color or gloss.

e. **Abrasion Resistance:** When the abrasion resistance of the material is tested in accordance with ASTM D4060 with a CS-17 wheel under a load of 1000 grams for 1000 cycles, the wear index will be no greater than 82 (The wear index is the weight in milligrams that is abraded from the sample under the test conditions).

f. **Chemical Resistance:** Cured markings will be resistant to calcium chloride, sodium chloride, fuels, and oils.

g. **Reflective Elements and Glass Beads:** Bonded core reflective elements and glass beads will be used as recommended by the durable pavement marking manufacturer for all durable pavement markings on this project. Glass beads will meet the following gradation requirements when tested according to ASTM D1214:

Sieve Size	Percent Passing
#14	100
#18	65 - 80
#30	30 - 50
#50	0 - 5

Glass beads will have a minimum of 70% true spheres.

The glass spheres will be transparent, colorless, and free of milkiness, dark particles, carbon residues, and excessive air inclusions. All glass beads retained on the #18 sieve will be produced from virgin glass by direct melt methods.

The glass beads will be without floatation properties. The glass beads will have dual surface treatment consisting of a moisture resistant silicone treatment and a silane adherence surface treatment.

The bonded core reflective elements will contain either clear or yellow tinted microcrystalline ceramic beads bonded to the outer surface. The bonded core reflective elements will provide a 50/50 blend of dry to wet ratio of reflective element. All microcrystalline ceramic beads bonded to reflective elements will have a minimum index of refraction of 1.8 for dry retroreflectivity and 2.4 for wet retroreflectivity when tested using the liquid oil immersion method.

Reflective media will require a certificate of compliance for certification for each type, source, and lot. Acceptance sampling will not be required.

2. **Epoxy Materials:** The following requirements, in addition to those specified in Section II.B.1 of this special provision, will also apply when the Contractor elects to use epoxy pavement markings.

   a. **Classification:** This specification provides for the classification of epoxy pavement marking systems by type.

      Type I - A fast cure material suitable for line applications and, under ideal conditions, may not require coning.

      Type II - A slow cure material suitable for all applications of pavement markings performed under controlled traffic conditions requiring coning and may require flagging as directed by the Engineer.

      Type II epoxy material will be used for epoxy pavement markings except as specified otherwise in the plans.

   b. **Composition:** Furnish a two component 100% solids epoxy material containing no fillers or pigment extenders. Follow the manufacturer's mixing ratio when mixing the two components. Mix the components within ± 2.5% of the manufacturer's recommended mix ratio.

   c. **Pigment and Epoxy Resin:** The pigment and resin component will meet the following percentages by weight:

Material	White	Yellow
Pigment		
TiO2, meeting ASTM D476	18 - 38	12 - 17
Organic Yellow		7 - 9
Epoxy Resin	75 - 82	74 - 82

      Test the epoxy content of the epoxy resin in accordance with ASTM D1652 and calculate as the Weight per Epoxy Equivalent (WPE) for both white and yellow. Determine the epoxy content on a pigment free basis. The accepted epoxy content range (WPE) is ± 50 of the manufacturer's target value.

      Ensure the activator/curing agent meets the following requirements:

      Test the amine value in accordance with ASTM D2074. Ensure the total amine value meets the manufacturer's target value with the acceptance range being ± 50 of the target value.

d. Tensile Strength: The tensile strength of the epoxy paint material, when tested in accordance with ASTM D638, will not be less than 6,000 psi after 72 hours cure at 73°F ± 5°F.

3. Polyurea Materials: The following requirements, in addition to those specified in Section II.B.1 of this special provision, will also apply when the Contractor elects to use polyurea pavement markings.

a. Composition: The polyurea pavement marking material will consist of 100% solid two part system formulated and designed to provide a simple volumetric mixing ratio of two components (part A and part B). No volatile or polluting solvents or fillers will be allowed.

Upon heating to application temperature, the material will not exude fumes which are toxic or injurious to persons or property.

b. Pigment: White polyurea coating materials will contain not less than 13% by weight rutile titanium dioxide (TiO_2), meeting ASTM D476. Yellow pigments will be an organic yellow and contain no heavy metals.

III. CONSTRUCTION REQUIREMENTS

A. Equipment for Durable Pavement Marking: Equipment furnished will be designed to apply the type of durable pavement marking material selected including reflecting elements or glass beads. The equipment will be capable of applying marking materials in a solid and intermittent line pattern, according to the details in the plans. The equipment will be capable of placing lines on the left and right sides. The left carriage will be capable of placing three lines simultaneously with each line in a solid or intermittent pattern in yellow or white, with each gun applying 4 to 8 inches wide. The equipment will be capable of accumulating the footage of marking applied per gun, individually, each day. Only material application will activate the footage accumulators. The readout will be digital and not adjustable. The equipment will accurately meter the two or more component materials. The equipment will produce and maintain the mixing head temperature, meeting the manufacturer's specifications.

The equipment will be capable of applying reflective elements or glass beads in a pressurized system, synchronized with the spray guns, uniformly across the entire marking. All guns on the spray carriages will be in full view of the operator during operation.

The equipment in the striping train will be capable of displaying a left or right Type C sequential chevron. The Type C sequential chevrons will meet the current Manual on Uniform Traffic Control Devices (MUTCD) standard for minimum size, legible distance, number of elements, and other specifications.

All traffic control items mounted on the equipment will be incidental to the other contract items. No separate payment will be made.

B. Grooving for Durable Pavement Marking: When specified in the plans, the Contractor will groove the pavement prior to applying the durable pavement marking in accordance with the following.

Grooving for durable pavement markings will not be allowed on bridge decks. All pavement markings on bridge decks will be surface applied. Unless otherwise specified in the plans, the Contractor will groove the surface for pavement markings as specified below:

The grooving will be performed within the following specifications and tolerances:

Description	Specification	Tolerance
Depth of Groove	Marking Thickness*[1] + 15 mils	+ 5 mils
Width of Groove	5 to 6 inches	± 1/8 inch
Length of Skip Lines*[2]	10 foot 6 inches	± 3 inch
Tapers at ends of lines	6 to 9 inches	
Between Double Lines	4 inches	± 1/2 inch

*[1] Marking thickness will include the thickness of marking material and reflective media.
*[2] Additional length may be required as specified in the plans.

The equipment will be capable of:

- grooving the total width of the groove in one pass or uniform depths with multiple passes
- grooving without causing damage to the pavement joints or joint sealant material
- providing uniform alignment and depth
- moving continuously to permit a mobile traffic work operation

If damage to joints, joint sealant material, backer rod, etc. occurs, the grooving operation will be stopped and modifications will be made to the grooving operation to prevent further damage. The Contractor may be required to use specially prepared circular diamond blade cutting heads to prevent damage at the joints. Damage caused to joints, the joint sealant material, backer rod, etc will be repaired or replaced by the Contractor, as directed by the Engineer. No additional payment will be made for the repair work or any reapplication of the pavement marking in the area of the repair.

The Contractor will establish a positive means for the removal of grooving residue. Solid residue will be removed from the pavement surfaces before being blown by traffic action or wind. The Contractor will conduct this work to control and minimize airborne dust and similar debris that may become a hazard to motor vehicle operation or a nuisance to property owners. Residue

from wet grooving will not be permitted to flow across traffic lanes being used by public traffic or into gutter or drainage facilities. Residue, whether in solid or slurry form, will be disposed of in a manner that will prevent it from reaching any waterway in a concentrated state.

The bottom of the groove will be uniform and free of loose material. The groove will be flat and of uniform depth for the entire width of the groove.

C. Surface Preparation for Pavement Marking: When specified in the plans, the Contractor will prepare the pavement surface prior to applying the durable pavement marking in accordance with the following.

In areas where the existing groove meets the required depth and existing markings are still in place, the Contractor will clean the existing groove without adding additional depth beyond the required depth for the new pavement marking, including reflective media as noted in Section III.B of this special provision.

The cleaning will result in the existing pavement marking being adequately scuffed, abraded, and removed by light grinding or abrasive blasting or both to allow proper adhesion of the new durable pavement marking as per manufacturer's recommendations to comply with product warranties.

Existing grooves not meeting the required depth will be re-grooved in accordance with Section III.B of this special provision to the required depth for the new pavement marking, including reflective media.

D. Seasonal Limitations: Pavement markings will only be placed during conditions as per the manufacturer's recommendations.

E. Application: Pavement markings will be placed in accordance with the details shown in the plans. Markings will not be applied over a longitudinal joint. Markings will not be applied when the wind or other conditions cause a film of dust to be deposited on the pavement surface before the material can be applied.

The Contractor will place necessary control points for striping and to indicate necessary starting and cutoff points.

The Contractor will use a vacuum truck to clean the pavement in the pavement marking areas unless otherwise specified in the plans. The Contractor will ensure a clean, dry pavement surface free of deleterious material. Cost for this work will be incidental to the contract unit price for durable pavement marking.

The final location of the pavement marking will be placed in the area of road way surface as prepared as per Section III.B or III.C of this special provision.

The material application will be immediately preceded by a minimum of 80 psi air blast. Placement of marking materials will be only on clean, dry pavement with air and pavement temperatures at least 50°F and rising and within the seasonal limitation dates listed above.

The Contractor will apply the durable pavement markings prior to the section being opened to traffic. If weather conditions or seasonal limits prevent placement of durable pavement markings, temporary pavement markings will be applied before the section is opened to traffic and then removed prior to durable pavement marking application at no additional cost to the Department.

Edge marking and lane lines on divided roadways will be applied in the direction of travel.

Tracking of applied pavement marking will not be allowed. The Contractor will adjust the pavement marking operation to prevent tracking. The “no-tracking” will be determined by passing over the line with a passenger car or pickup truck at a speed of 25 to 35 mph in a simulated passing maneuver. A line showing no visual deposition of the material to the pavement surface when viewed from a distance of 50 feet will be considered as showing “no-tracking” and conforming to the requirement for “no-track”.

During pavement marking operations on sections of roadway open to traffic, the Contractor will protect the markings from tracking.

All material heated over the manufacturer’s upper limit on temperature will be discarded.

F. Durable Pavement Marking Application Rates & Thickness: The pavement marking will be applied at the rate and thickness as recommended by the manufacturer. Pavement markings applied at a wet thickness less than 20 mils will not be accepted.

G. Reflective Elements and Glass Beads: Reflective elements and glass beads will be applied at a rate necessary for meeting the minimum levels of retroreflectivity. Application of reflective elements and glass beads will be a double drop system. For application on epoxy pavement markings, the first drop will consist of a minimum of 4.2 lbs/gallon of reflective elements and the second drop will consist of a minimum of 16 lbs/gallon of glass beads. For application on polyurea pavement markings, the first drop will consist of a minimum of 4.2 lbs/gallon of reflective elements and the second drop will consist of a minimum of 7 lbs/gallon of glass beads.

Reflective elements and glass beads will be applied immediately after the placement of the marking.

H. Application Tolerances:

- The length of the stripe will not vary more than plus or minus 3 inches from the plans requirement.
- The minimum width of the stripe will be its nominal width as required in the plans with 1/2 inch greater than nominal width allowed provided the variation is gradual and does not detract from the general appearance.
- The stripe will have the same general appearance and width in both daytime and nighttime conditions (no shadowing or shading).
- The length of a 40 foot cycle length (stripe and gap) will not vary more than 3 inches.
- The alignment from the plans requirement or existing markings will not vary more than plus or minus 1 inch in 200 feet.
- The maximum longitudinal deviation from the existing markings at the beginning of the painted roadway segment will not vary more than plus or minus 6 inches.
- Placement of cycle will coincide with the existing markings at each end of the project limits.

Any markings that are outside of these tolerances will be removed and replaced by the Contractor at no cost to the Department. Removal will be performed utilizing equipment that is not detrimental to the final surface, as required by the Engineer. Establishment of application tolerances will not relieve the Contractor of the responsibility to comply as closely as practicable with plan dimensions.

I. Retroreflectivity Testing General: The Department will take retroreflectivity readings on the pavement marking lines no sooner than 3 calendar days and no later than 30 calendar days after the completion of all line applications required for an individual highway route using a portable retroreflectometer conforming to 30 meter geometry. Retroreflectivity readings will be taken on a test location with cleaning being limited to light hand brooming.

If replacement of markings cannot be applied within the same year, the contractor will schedule subject work to be completed no later than June 15th in the following year. Upon replacement, the retroreflectivity testing process will be done again requiring new readings.

The Department will randomly select one test location per mile of each edgeline and one test location per mile of centerline (solid and/or skip line will be considered as one centerline). The Department will randomly select one test location on each ramp edgeline and one test location on each ramp gore area. Three retroreflectivity readings will be taken at each test location. The three readings will be averaged and become the reading for that test location.

J. Retroreflectivity Testing Divided Four Lane Two Way Roadways: Each edge line and lane line will be tested. Three readings will be taken at each test location on each edge line and lane line in the direction of travel and will become the test reading for that test location.

K. Retroreflectivity Testing Undivided Two and Four Lane Two Way Roadways with Center Turn Lane: Each edge line and lane line will be tested. Three readings will be taken at each test location on each line in the direction of travel and will become the test reading for that test location.

Each combination solid yellow/skip yellow lines for the turn lane will be tested. Three readings will be taken at each location on each line in one direction, the reflectometer will be turned 180 degrees and three more readings on each line will be taken. The six readings for the centerline(s) will be averaged and become the test reading for that test location. If the random location does not fall on a line, the marking(s) closest to the random location will be tested.

L. Retroreflectivity Testing Two Lane Two Way Roadways: Each edge line and centerline(s) will be tested. Three readings will be taken at each test location on the edge lines in the direction of travel. Three readings will be taken on centerline in one direction, the reflectometer will be turned 180 degrees and three more readings will be taken. The six readings for the centerline(s) will be averaged and become the test reading for that test location. If the random location for the centerline(s) does not fall on a line, the marking(s) closest to the random location will be tested.

M. Retroreflectivity Testing Interstate Interchange Off and On Ramps: Each edge line will be tested. Three readings will be taken at each test location on the edge line in the direction of travel, the three readings averaged and the result will become the test reading for that test location.

N. Retroreflectivity Testing Interstate Interchange Off and On Ramp Gore Areas: The 12 inch edge line on mainline interstate and the 12 inch edge line on the ramp that, in combination, form a “V” at an interstate gore area will be tested. Three readings will be taken at each test location on the edge line in the direction of travel, the three readings averaged and the result will become the test reading for that test location.

O. Retroreflectivity Requirements: The pavement markings will meet the following minimum retroreflectivity requirements.

Pavement Marking Color	Minimum Value
White	331 mcd/m2/lux
Yellow	206 mcd/m2/lux

P. Non-conformance: All pavement markings not conforming to the requirements of the contract will be considered under the provisions of Section 5.3 and may be required to be removed. Additional retroreflectivity readings will be taken by the Department to determine the limits of removal. The removal will be accomplished using suitable sand blasting or grinding equipment unless the Engineer authorizes other means. The removal process will remove at least 90% of the deficient line, with no excessive scarring of the existing pavement. The removal width will be one inch wider all around the nominal width of the pavement marking to be removed. Removal and replacement of the pavement markings will be at Contractor's expense, with no cost incurred by the Department.

IV. METHOD OF MEASUREMENT

A. Grooving for Durable Pavement Marking: Grooving will be measured to the nearest foot, along the length of the groove for the width of the grooving specified.

B. Grooving for Durable Pavement Marking Arrow: Grooving for durable pavement marking arrow will be measured by the count of each arrow type specified.

C. Grooving for Durable Pavement Marking Area: Grooving for durable pavement marking area will be measured to the nearest square foot.

D. Surface Preparation for Pavement Marking: Surface preparation for pavement marking will be measured to the nearest foot, square foot, or each as required by the respective contract item.

E. Durable Pavement Marking: Durable pavement markings, of the width and color specified, will be measured to the nearest foot.

F. Durable Pavement Marking Arrow: Durable pavement marking arrows will be measure by count of each type specified.

G. Durable Pavement Marking Area: Durable pavement marking areas will be measured to the nearest square foot.

V. BASIS OF PAYMENT

A. Grooving for Durable Pavement Marking: Grooving for durable pavement marking will be paid at the contract unit price per foot for the width of groove specified. Payment will be full compensation for equipment, labor, materials, and all incidentals required.

B. Grooving for Durable Pavement Marking Arrow: Grooving for durable pavement marking arrow will be paid for at the contract unit price per arrow type specified. Payment will be full compensation for equipment, labor, materials, and all incidentals required.

C. Grooving for Durable Pavement Marking Area: Grooving for durable pavement marking area will be paid for at the contract unit price per each square foot. Payment will be full compensation for equipment, labor, materials, and all incidentals required.

D. Surface Preparation for Pavement Marking: Surface preparation for pavement marking will be at the contract unit price per foot, square foot, or each as required by the respective contract item. Payment will be full compensation for equipment, labor, materials, and all incidentals required.

E. Durable Pavement Marking: Cost for durable pavement marking will be paid at the contract unit price per foot for Durable Pavement Marking. Payment will be full compensation for all items necessary to complete the work including, but not limited to, all traffic control, equipment, labor, materials, and all incidentals required.

F. Durable Pavement Marking Arrow: Durable pavement marking arrows of the type specified will be paid for at the contract unit price per each. Payment will be full compensation for all items necessary to complete the work including, but not limited to, all traffic control, equipment, labor, materials, and all incidentals required.

G. Durable Pavement Marking Area: Durable pavement marking areas will be paid for at the contract unit price per square foot. Payment will be full compensation for all items necessary to complete the work including, but not limited to, all traffic control, equipment, labor, materials, and all incidentals required.

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SECTION 31 0505
SELECTIVE DEMOLITION FOR SITE WORK

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Work to provide all labor, materials, tools, and equipment necessary or incidental to remove and dispose of those Site Work obstructions indicated in Contract Documents including salvaging of designated materials, abandonment and removal of existing utilities and utility structures, and filling of resulting trenches, holes, and depressions. Work includes, but is not limited to:
   1. Sawing of bituminous pavement.
   2. Sawing of concrete pavement.
   3. Removal and disposal of pavement surfacing.
   4. Removal and disposal of sidewalk.
   5. Removal and disposal of curb and gutter.
   6. Removal and disposal of driveway pavement.
   7. Removal and disposal of manholes and manhole covers, curb inlets and catch basins.
   8. Removal and disposal of existing culvert and storm sewer piping.
   9. Removal and disposal of existing watermain piping, fittings, and appurtenances.
   10. Removal and disposal of existing sanitary sewer piping.
   11. Removal and disposal of existing fences and gates.
   12. Abandonment in place of existing utility piping.
   13. Removal of all other Site Work obstructions indicated for salvage, relocation, or recycling in Contract Documents.
   14. Removal, salvage, and reinstallation of existing obstructions not indicated in Contract Documents, but required by Work. Obstruction items include, but are not limited to signage, mailboxes, fences, and drainage piping. Restore or replace items to condition equal to or better than existing unless otherwise indicated.
   15. Protection of items adjacent to obstructions indicated for salvage, relocation, or recycling in Contract Documents.
   16. Filling and compacting excavations, holes, and depressions generated as result of demolition work as specified in Section 31 2200 - Grading.

1.02 DEFINITIONS

A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.

B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.

C. Hazardous: Exhibiting characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.

D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.

E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.

F. Recyclable: Ability of a product or material to be recovered at end of its life cycle and remanufactured into a new product for reuse by others.

G. Recycle: To remove a waste material from Project Site to another site for remanufacture into a new product for reuse by others.

H. Recycling: Process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

I. Return: To give back reusable items or unused products to vendors for credit.

J. Reuse: To reuse a construction waste material in some manner on Project Site.

K. Salvage: To remove a material from Project Site in acceptable condition for reuse.

L. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.

M. Source Separation: Act of keeping different types of waste materials separate beginning from first time they become waste.

N. Toxic: Poisonous to humans either immediately or after a long period of exposure.

O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.

P. Waste: Extra material or material that has reached end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

1.03 REFERENCE STANDARDS

A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards; current edition.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate compliance with regulatory requirements, including but not limited to Federal, State, and local requirements pertaining to legal disposal of all construction and demolition waste materials.

B. Coordinate compliance with applicable codes and regulations for safety of adjacent structures and public.

C. Coordinate haul routes.

D. Obtain required permits for Work.

E. Use of explosives is prohibited.

1.05 SUBMITTALS

A. Disposal Plan: Provide information and documentation substantiating proper disposal arrangements and operations.

B. Record Documents: Include information pertaining to additional existing utilities encountered, and abandoned utilities locations.

PART 2 PRODUCTS

2.01 MATERIALS

A. Fill Material: As specified in Section 31 2200 - Grading.

PART 3 EXECUTION

3.01 PREPARATION

A. Do not begin demolition work until receipt of Notice to Proceed.

B. Coordinate Work with utility companies; notify before starting Work and comply with requirements; obtain required permits.

C. Drawings indicating existing construction and utilities are based on casual field observation and existing record documents only.
   1. Verify that construction and utility arrangements are as indicated on Drawings.
   2. Report discrepancies to Architect before disturbing existing installation.
   3. Commencement of demolition work constitutes acceptance of existing conditions.

D. Do not begin demolition work until built items to be salvaged or relocated have been removed.

E. Do not begin demolition work until vegetation to be relocated has been removed and specified measures have been taken to protect vegetation to remain.

F. Protect existing utilities, structures, and elements to remain.
   1. Provide bracing and shoring.
   2. Prevent movement or settlement.
   3. Perform cutting to accomplish removals neatly and as specified for cutting new work.
   4. Stop Work immediately if adjacent utilities, structures, or elements appear to be in danger.
   5. Patch as specified for patching new work.

G. Provide and maintain temporary barriers and security devices.

H. Use physical barriers to prevent access to areas that could be hazardous to workers or public.

I. Do not close or obstruct roadways or sidewalks without permit.

J. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.

3.02 CONSTRUCTION

A. Conduct operations to minimize effects on and interference with adjacent structures and occupants.

B. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.

C. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.

D. Saw cut bituminous and concrete surfaces as indicated on Drawings and as directed by Architect prior to starting demolition work to establish a neat line for extending new Work.

E. Remove existing items as indicated and as required to accomplish new Work.
   1. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction specified.
   2. Remove items indicated on Drawings.

F. Remove Transite Utility Piping:
   1. All existing watermain and water services are assumed to be transite material.
   2. Unless otherwise indicated on Drawings as removal, transite watermain may be abandoned or removed at Contractor's discretion.
   3. All necessary care shall be taken to limit amount of crushing, crumbling, pulverizing, sanding, cutting, grinding, or abrading of existing pipe in order to prevent it from becoming friable.
   4. If material becomes friable, it must be removed by licensed asbestos removal contractor. In all cases, material that is removed must be disposed of at an SD ENR-approved site.
      a. Assume responsibility for all costs associated with proper handling of asbestos-containing materials.

G. Remove and Abandon Utility Piping:
   1. Existing watermain, sanitary sewer, and storm sewer pipe being replaced with new materials are generally considered as debris to be removed as indicated on Drawings.
   2. In certain instances, existing pipes may be abandoned in place as designated on Drawings, or directed by Architect.
   3. Pipe abandonment includes:
      a. Disconnect line to be abandoned from live system as indicated on Drawings or directed by Architect.
      b. Fill line to be abandoned by pumping or blowing fine granular material capable of filling pipe cavity to be abandoned as approved by Architect.
      c. Cap open pipe ends with fittings appropriate to piping or bulkhead with non-shrink concrete grout at a thickness of not less than one pipe diameter to provide watertight seal.
      d. Document pipe abandonment locations on Project record documents.

H. Partial Removal of Structure:
   1. Protect existing structure to remain for use during removal operations.
   2. Ensure a length of at least 40 bar diameters from face of cut for existing reinforcement bars for concrete structures to be left in place.

I. Partial Removal of Paving, Sidewalks, and Curbs:
   1. Neatly saw cut full depth at right angle to surface as indicated on Drawings or as directed by Architect on Site.
   2. Removal of paving, sidewalks, and curbs shall be made to nearest joint of limits indicated on Drawings when reasonable, unless otherwise approved by Architect.

J. Remove Concrete and masonry structures:
   1. Remove to excavation limits as indicated on Drawings.
   2. Provide by-pass and maintain service to live sewers during removal operations.
   3. Rebuild and reconnect live sewer following removal of related manhole, catch basin, or drop inlet.

4. Plug abandoned pipes draining into basements, manholes, or similar structures with concrete, masonry plugs, or other methods as approved by Architect.

K. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

L. Generate least amount of trash and waste possible. Perform demolition in a manner that maximizes salvage and recycling of materials.
   1. Set aside reusable, recyclable, and salvageable materials; store and deliver to collection point or point of reuse.

M. Stockpile items designated for salvage at location approved by Architect. Remove, dismantle, and clean materials as required by Contract Documents prior to stockpiling.

N. Stop Work and notify Architect and Owner if hazardous materials are discovered during removal operations. Hazardous materials include, but are not limited to regulated asbestos containing materials, lead, PCB's, mercury, and petroleum based fuel products.

O. Fill excavations, holes, and depressions left following selective demolition Work using suitable fill material with top surface neat in appearance and smooth enough to not constitute a hazard to public. Refer to Section 31 2200 - Grading for additional requirements.

3.03 CLEANING

A. Remove debris, junk, trash, and unused materials from Site.

B. Remove items designated for salvage from Site that are determined by Architect following removal to be in a condition not worth salvaging. This is only applicable to removed items not damaged due to negligence of Contractor.

C. Unacceptable methods of trash/waste disposal include:
   1. Burning on Site.
   2. Burying on Site.
   3. Other illegal dumping or burying.

D. Leave Site in clean condition, ready for subsequent Work.

E. Clean up spillage and wind-blown debris from public and private lands.

F. Assume full responsibility for acceptable disposition of removal materials and for damages resulting from disposal operations.

END OF SECTION

SECTION 31 2200
GRADING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Work to provide all labor, materials, tools, and equipment necessary or incidental to grade, excavate, fill, and compact Site as indicated in Contract Documents and in accordance with the City and State Standard Specifications and Geotechnical Recommendations.

1.02 PRICE AND PAYMENT PROCEDURES

A. All removal and disposal required; sheeting, shoring and bracing; source quality control testing and other Work required under this Section shall be considered incidental to Project and no claim for compensation or extra work will be accepted.

B. No claim for additional payment will be accepted for excavation and fill required for removal of unsuitable material of up to 6-in. below bottom of subgrade, 12-in. below bottom of foundation, 12-in. below bottom of structural fill, or 12-in. below minimum excavation limit indicated on Drawings, whichever results in greater excavation and fill.

C. Excavation and fill required for removal of unsuitable material deeper than above limits will be paid for as Extra Work.

1.03 DEFINITIONS

A. Structure: Existing and new man-made features including, but not limited to buildings, foundations, footings, slabs, pump stations, manholes, catch basins, drop inlets, retaining walls, and other structural elements and systems.

B. Topsoil: Organic soil material, typically found at top of soil horizon and black in color use as a medium to establish plant growth for water quality and permanent erosion protection meeting requirements of SDDOT 734.

1. Common Topsoil Borrow: Ranges from a silt loam, loam, clay loam, sandy clay loam, or sandy loam soils for general use as a turf growing medium and in accordance with the table below. Largest materials size dimension not to exceed 2.5 inches.

Requirement	Range	Test Method
Material passing No4 in	greater than or equal to 85%	--
Clay	5% - 35%	ASTM D 422
Silt	5% - 70%	ASTM D 422
Sand	10% - 75%	ASTM D 422
Organic Matter	3% - 15%	ASTM D 2974
pH	6.1 - 7.8	ASTM G 51

2. Loam Topsoil Borrow: Consisting mostly of loam ranging into sandy clay loam, sandy loam, silt loam, and clay loam soils as a plant growing medium for landscape and planting beds in accordance with the table below.

Requirement	Range	Test Method
Material Passing the 3/4 in	100%	ASTM D 422
Material Passing No. 4	greater then or equal to 90%	--
Clay	5% - 35%	ASTM D 422
Silt	10% - 60%	ASTM D 422
Sand	15% - 60%	ASTM D 422
Organic Matter	3% - 15%	ASTM D 2974
pH	6.1 - 7.5	ASTM G 51
Soluble Salts	less than or equal to 0.15 siemens/m	--

3. Sandy Clay Loam Topsoil Borrow: Consisting of a sandy clay loam and ranging into clay loam, sandy loam, and loam soils for use as a plant growing medium in critical areas, such

as steep slopes and as a top dressing for Turf Reinforcement Mats, and in accordance with the table below.

Requirement	Range	Test Method
Screened	--	--
Material Passing the 3/4 in	100%	ASTM D 422
Material Passing No. 4	greater than or equal to 95%	ASTM D 422
Clay	10% - 35%	ASTM D 422
Silt	0% - 40%	ASTM D 422
Sand	30% - 75%	ASTM D 422
Organic Matter	3% - 15%	ASTM D 2974
pH	6.0 - 7.5	ASTM G 51
Soluble Salts	less than or equal to 0.15 siemens/m	--

C. Select Grading Material: Mineral soils found in the Triaxial Chart in the Erosion & Sediment Control Construction Manual, excluding silt. Silt is defined as soils containing 80% or more silt-sized particles. Marl and organic soils are also excluded.

D. Select Granular Material: Granular material meeting a passing ratio of No. 200/1in between 0-12%.

E. Suitable Subsoil Material: Excavated Select Grading Material that will provide for indicated soil bearing capacity, soil densities, material requirements and that, in opinion of soil testing laboratory, will not be subject to future decomposition, settlement, subsidence, expansion, and are otherwise of required soil type.

F. Unsuitable Subsoil Material: Excavated material that will not provide for indicated soil bearing capacity and soil densities and that in opinion of soil testing laboratory will be subject to future decomposition, settlement, subsidence, expansion, and are otherwise not of required soil type, as well as material that exceeds 1-cu.yd. in volume, cannot be re-used within project limits, and in opinion of Architect requires special means for handling and disposal including but are not limited to organic soils, rubble, wood debris, boulder stone, masonry, concrete fragments, and metals.

1.04 REFERENCE STANDARDS

A. SDDOT Specification Section 120 - Roadway and Drainage Excavation and Embankment Construction; 2015

B. SDDOT Specification Section 230 - Salvaging, Stockpiling, and Placing Topsoil; 2015

C. SDDOT Specification Section 734 - Erosion Control and Water Pollution Control; 2015

D. SDDOT Specification Section 850 - Select Granular Backfill; 2015

E. SDDOT Specification Section 882 - Aggregates for Granular Bases and Surfacing; 2015

F. SDDOT Earthwork Manual

G. Geotechnical Exploration by AET , dated July 17, 2023

1.05 ADMINISTRATIVE REQUIREMENTS

A. Obtain required permits for Work.

1.06 SUBMITTALS

A. Manufacturer's Certification: Certificate of compliance for all materials, supplies, and equipment provided.

B. Lab Test Reports: As specified; include source of each material tested and date sampled.
   1. Gradation
   2. Percent Crushing
   3. Aggregate Quality

1.07 DELIVERY, STORAGE, AND HANDLING

A. Stockpiles:

1. Place material on Site at location approved by Owner until required for incorporation into Work.
2. Locate to limit additional loading or soil pressure on Site excavations and structures.
3. Place, grade, and shape for proper drainage.
4. Limit depth not to exceed 8-ft.
5. Separate differing materials with dividers or stockpile separately to prevent intermixing.
6. Prevent material contamination.
7. Protect from erosion and deterioration of materials.

1.08 WARRANTY

A. Correct defective Work within correction period after Date of Substantial Completion.
   1. Assume full responsibility and expense for all settlement, and refill and restore Work as directed to maintain an acceptable surface condition regardless of location.
   2. Settlement of pavement areas in excess of 1-in., as measured by a 10-ft. straight edge shall be considered failure of mechanical compaction.

PART 2 PRODUCTS

2.01 MATERIALS

A. Excavation Material:
   1. Unclassified Excavation: All materials except those classified as unclassified/rock excavation; rock excavation; muck excavation; unclassified excavation, digouts; option borrow excavation; contractor furnished borrow excavation; borrow unclassified excavation, and other removal items encountered during the construction of the work, regardless of the nature of the material or manner in which the material is removed, will be considered unclassified excavation
   2. Unclassified/Rock Excavation: Unclassified/rock excavation consists of the excavation and placement of both soil and rock when both are anticipated throughout the project area. This item differs from unclassified excavation in that an undetermined quantity of rock shall be excavated in addition to the materials included in unclassified excavation.
   3. Muck Excavation: Muck excavation consists of the removal and disposal of saturated organic mixtures of soils and organic matter which requires additional work or equipment not normally required for unclassified excavation.
   4. Unclassified Excavation, Digouts: Unclassified excavation, digouts consists of the removal and disposal of unstable material below an existing surface on which surfacing material is to be placed.

B. Borrow Material:
   1. Option Borrow Excavation: Material, furnished by the Owner, from a pit or other source. The Contractor may use this material at the Contractor’s option.
   2. Contractor Furnished Borrow Excavation: Material, furnished by the Contractor, from a pit or other source.
   3. Borrow Unclassified Excavation: Material, furnished by the Owner, from a pit or other source. The Contractor must use this material.
   4. Select Subgrade Topping: Sources of selected subgrade topping material will be confined to the areas specified. The upper 6 inches of sodded areas, materials with high humus or silt content, and outwashed material in poorly drained areas will not be acceptable. Unsatisfactory material found within the specified sources shall not be used as select subgrade topping.
   5. Granular Structural Fill: The granular structural fill shall consist of a pit-run or processed sand or gravel having a maximum particle size of 3 inches with less than 15 percent by weight passing the #200 sieve. The material shall be placed in lifts no greater than 1-foot.
   6. Crushed Drainage Rock: The drainage rock shall be crushed, washed, and meet the gradation requirements specified within the Geotechnical Report.
   7. Select Granular Fill: The select granular fille shall consist of medium to coarse grained, free draining sand or rock having a maximum particle size of 1-inch with less than 5 percent by weight passing the # 200 sieve. The material shall be placed in lifts no greater than 1-foot.
   8. Free Draining Sand: The free-draining sand should have a maximum particle size of 1 inch with less than 5 percent by weight passing the #200 sieve. The material shall be placed in lifts no greater than 1-foot.

9. Non-Frost Susceptible Drainage Fill: The non-frost susceptible drainage fill should have a maximum particle size of 1-inch, less than 40 percent by weight passing the #40 sieve and less than 5 percent by weight passing the #200 sieve. The material shall be placed in lifts no greater than 1-foot.
10. Subgrade Fill: The subgrade fill should consist of either a granular or clay material. Debris, organic material, or over-sized material should not be used as subgrade fill. If a granular material is used, then it should consist of a pit-run or processed sand or gravel having a maximum particle size of 3 inches. The material shall be placed in lifts no greater than 1-foot. If a clay material is selected, then it should consist of a non-organic clay having a liquid limit less than 45. Scrutiny on the clay material's moisture content should be made prior to the acceptance and use. The clay fill shall placed in lifts of up to 6-inches in thickness.
11. Granular Subbase: The granular subbase shall consist of crushed quartzite, recycled concrete, or a crushed pit-run material meeting the gradation requirements within the Geotechnical Report.
12. Exterior Foundation Wall Backfill for Slab on Grade Structures: The exterior foundation wall backfill for slab-on-grade structures should consist of a similar material as described for the subgrade fill. If granular soils are used in areas that will not have asphalt or concrete surfacing, cap the granular soils with at least 1 to 2-feet of clay soils to minimize infiltration of surface water. The exterior backfill shall be placed in lifts up to 1-foot.
13. Aggregate Base Course Material: The aggregate base course material shall meet the requirements of SDDOT Sections 260 and 882.
14. Pit Run: Pit run shall conform to Section 882.

C. Undercutting: Undercutting shall consist of excavating, replacing, and compacting the material immediately below the finished subgrade surface, at locations specified and to the depth specified.

2.02 SOURCE QUALITY CONTROL

A. Coordinate and pay for independent testing agency to perform Source Quality Control testing per the following:
1. Obtain samples for testing from material in stock at locations and by methods approved by Architect.
2. Provide 1 gradation test of select granular borrow.
3. Provide 1 percent crushing test of select granular borrow.
4. Provide 1 aggregate quality test of select granular borrow.
5. Perform tests no more than 90 calendar days before Notice of Award.
6. Submit test results to Architect prior to delivering materials to Site.

B. Coordinate and pay to re-test material failing a test, or provide alternate acceptable material as necessary to satisfy Architect that requirements are met.

PART 3 EXECUTION

3.01 EXAMINATION

A. Determine to own satisfaction of location and nature of surface and subsurface obstacles and soil and water conditions that will be encountered during Work.
1. Test borings and other exploratory operations may be made by Contractor at own expense to make such determinations.
2. Make arrangements for soil investigations with Owner when applicable.
3. Claims for additional payment due of nature of subsurface in which Work of this Section is performed, or for repairs made to subgrade related to weather will not be permitted.

B. Verify that survey bench marks and intended elevations for Work are as indicated.

C. Verify that structural installations have been inspected prior to filling Work.

3.02 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Stake and flag locations of known utilities.

C. Locate, identify, and protect from damage above and below-grade utilities to remain.

D. Notify utility company to remove and relocate utilities if necessary.

E. Prevent interruption of existing utilities serving facilities occupied and used by Owner or others, except when allowed by utility owner and then only after acceptable temporary utility services have been provided.
   1. Provide temporary services, complying with Federal, State, and local laws and regulations, and as acceptable to Owner, during any interruptions.

F. Maintain full access to project exits and entrances, fire hydrants, street crossings, sidewalks, and other points as designated by Owner to prevent significant interruption of accessibility.

G. Before beginning Grading Work, perform Work specified in sections 31 0505 - Selective Demolition for Site Work, and Erosion and Sediment Control.

H. Maintain existing site drainage ways or provide new paths of drainage as required to perform Work.

I. Protect Site features to remain, including but not limited to bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs, from lateral movement, settlement, undermining, washout, and other undesirable conditions created by Work.

J. Protect trees, plants, lawns, and other features to remain as a portion of final landscaping by providing substantial fencing around area. Place fencing for trees at outer drip line of branches; no grading is to be performed inside drip line.

K. Protect critical areas of Site from compaction as necessary including, but not limited to, infiltration, filtration, and bioretention areas, wetland soil edges, certain utilities, Areas of Environmental Sensitivity, and those other areas as indicated on Drawings. Assume full responsibility for restoration Work to decompact such areas including subsoiling, and soil density testing to verify restoration to condition as good or better than existing as determined by Architect.

3.03 SOIL REMOVAL AND STOCKPILING

A. Stockpile excavated topsoil for re-used on Site; remove excess from Site.

B. Stockpile excavated suitable subsoil material for re-used on Site; remove excess from Site.

C. Remove excavated unsuitable subsoil material from Site.

3.04 EXCAVATING

A. Remove topsoil from excavation area in accordance with AET recommendations found within the Geotechnical Exploration, without mixing with foreign materials.

B. Do not remove topsoil when wet.

C. Remove subsoil from excavation area.

D. Do not remove wet subsoil, unless it is subsequently processed to obtain optimum moisture content.

E. Reserve and segregate all suitable subsoil material, granular material, and topsoil from other materials and stockpile to extent practicable during excavation operations to permit best use of available materials at time of filling. Handle material as described incidental to Project with no additional compensation provided unless otherwise specified in Contract Documents.

F. Handle surplus material following filling as specified above.

G. When excavating through roots, perform Work to limit root disturbance and cut exposed roots clean with sharp tool.

H. Slope sides of excavations as required to provide stability and to comply with Federal, State, and local laws and regulations. Shore and brace excavation when required by Project conditions.

I. Utilize cofferdams, steel sheet piling, shoring, underpinning, and other systems required to prevent damage to existing structures, settlement, slope stability problems, and undermining.

J. Remove construction related protection systems after use is complete, in manner that will not loosen or damage soils, create slope stability problems, and otherwise damage existing or new structures.

K. Leave construction related protection systems in place subject to approval of Architect, when removal would create potential for damage to soil conditions or structures.

L. Excavate to required elevations and dimensions within specified tolerances and extending a sufficient distance as required to provide for Work, completion of structures, observation, and testing.

M. Do not disturb soil materials at and below excavation limits when excavating for structure foundations. Excavate by hand when necessary to prevent damage to subsoil material to remain.

N. Do not interfere with 2:1 (H:V) bearing splay of structural foundations, unless otherwise approved by Architect.

O. Trim structure bottoms to required lines and grades to leave solid dense base of required bearing capacity.

P. Excavation of unsuitable subsoil material encountered when establishing grade elevations shall be to depth recommended by Architect or soils testing laboratory beneath structures to obtain design bearing capacity. Material to be considered Common Excavation.

Q. Removal of materials beyond required subgrade elevations or dimensions without specific approval of Architect or soils testing laboratory as well as filling, compaction, and remedial work recommended at over excavated area shall be at own expense.

R. Fill unauthorized excavation under structures and their components utilizing one of the following systems, and as acceptable to Architect.
   1. Extend indicated bottom elevation of footing or base to excavation bottom, without altering required top elevation.
   2. Install lean concrete fill to bring elevations to required position.
   3. Fill and compact unauthorized excavations with soil materials and to density required by Architect.

S. Elsewhere, fill and compact unauthorized excavations as indicated for authorized excavations of same classification.

T. Use of explosives for rock excavation, when applicable, is not permitted.

U. Rock excavation for construction of structural elements, when applicable, shall be to depth required to allow for proper construction of structure. All rock excavated shall be considered unsuitable subsoil material and removed from Site.

V. Dewater excavations as necessary for Performance of Work according to Section 31 2319 - Dewatering.

W. Grade top perimeter of excavation to prevent surface water from draining into excavation.

X. Notify Architect immediately of unexpected subsurface conditions and discontinue affected Work in area. Allow reasonable amount of time for Architect to make assessment of conditions and determine alternate means of construction if necessary. As a minimum, Architect shall be allowed one Working Day from time of notification to make assessment and determination of alternate Work without Contractor submittal of Change Proposal for adjustment in Contract Price or Contract Times.

3.05 FILLING AND COMPACTING

A. Remove all topsoil and unsuitable subsoil material as outlined within the Geotechnical Exploration by AET to satisfaction of Architect prior to placing fill under structures and pavement areas.

B. Do not proceed with filling of excavations until completion of the following:
   1. Acceptance by Architect for construction of structures below finish grade.
   2. Observation, testing, approval, and recording of locations of underground utilities.
   3. Removal of concrete formwork.
   4. Removal of shoring, bracing, other protection systems, and backfilling and compaction of voids left by their removals.
   5. Removal of unsuitable subsoil materials, construction related debris, and excess materials.

C. Employ placement methods that do not disturb or damage other Work.

D. Fill to subgrade elevation within specified tolerances unless otherwise indicated.

E. Do not place fill on muddy surfaces, frozen ground, or on materials containing frost or ice.

F. Do not place fill on or in water.

G. Verify ability of structures to support loads imposed by fill.

H. Provide fill for specific locations and compact as specified:
   1. Footing and Slab Structural Fill:
      a. Use Fill Type as specified within the Geotechnical Report.
      b. Fill to subgrade elevation.
      c. Compact to minimum 97 % below footings and 95% below slabs of maximum dry unit weight per ASTM D698 (standard Proctor test).
      d. If groundwater or saturated soils are encountered at the bottom of an excavation, place 6 to 12 inches of drainage rock at the bottom of the excavation prior to the placement of fill.
   2. Foundation Wall Fill:
      a. Use Fill Type as specified within the Geotehcnical Report.
      b. Fill to 12-in. below subgrade elevation and cap with 12-in. layer of compacted clay sloped to provide positive surface drainage away from structure.
      c. Compact to minimum 95% of maximum dry unit weight per ASTM D698 (standard Proctor test).
      d. Do not backfill against unsupported foundation walls.
      e. Backfill simultaneously on each side of unsupported foundation walls until supports are in place.
      f. If groundwater or saturated soils are encountered at the bottom of an excavation, place 6 to 12 inches of drainage rock at the bottom of the excavation prior to the placement of fill.
   3. Subgrade in Pavement:
      a. Use Fill Type as specified within the AET Report.
      b. Compact to a minimum 95% of maximum dry unit weight per ASTM D698 (standard Proctor test).
   4. Base Course in Pavement:
      a. Use Fill Type as specified within the AETA Report.
      b. Compact to a minimum 97% of maximum dry unit weight per ASTM D698 (standard Proctor test).
   5. Granular Subbase in Pavement:
      a. Use Fill Type as specified within the AET Report.
      b. Compact to a minimum 97% of maximum dry unit weight per ASTM D698 (standard Proctor test).
   6. Site Grading Fill Outside Pavement Areas:
      a. Use Fill Type Select Grading Material available on Site, otherwise use Fill Type Common Borrow.
      b. Fill to subgrade elevation.
      c. Compact to minimum 90% of maximum dry unit weight per ASTM D698 (standard Proctor test).
   7. Topsoil Fill In Turf Establishment Areas:
      a. Use Fill Type Top Soil available on Site, otherwise use Fill Type Common Topsoil Borrow.
      b. Fill to finished elevation.
      c. Compact loosely to facilitate turf establishment.

I. Place fill materials in compacted layers of thickness necessary to meet compaction requirements.

J. Limit fill layer thickness to 8-in. in loose depth for material compacted by heavy compaction equipment, and 4-in. in loose depth for material compacted by hand operated tampers unless soil density tests substantiate specified densities will be obtained when material is placed in thicker lifts.

K. Place fill material in lifts uniformly to same approximate elevation, not exceeding final grade height, in manner required to prevent creation of unbalanced soil lateral pressures, wedging action of materials, soil pressures that exceed design lateral soil conditions, and damage to structures.

L. Scarify, mix, and compact upper 8-in. of pavement subgrade following grading, filling, and/or trenching Work.

M. Determine moisture content during compaction using test methods approved by Architect.

N. Apply water or aerate each fill layer to extent required to obtain optimum moisture content for indicated compaction requirement.

O. Maintain moisture content during compaction between 65% and 102% of optimum moisture content, unless otherwise approved by Architect.

P. Prevent free water from appearing on surface during or subsequent to compaction operations.

Q. Remove and replace with acceptable fill material, or scarify and air dry otherwise acceptable subsoil material that is too wet to obtain specified soil density.

R. Assist drying by disking, harrowing, or pulverizing, until moisture content is reduced to value required for compaction.

S. Hand tamp or utilize hand operated vibratory equipment when required to compact fill material placed immediately adjacent to structures.

T. Do not place additional fill layers until density of each layer in place complies with compaction requirements.

3.06 GRADING

A. Prepare subgrade and topsoil per recommendations specified in Geotechnical Exploration performed AET by , conforming to SDDOT Division II specifications, and as specified below prior to turf establishment Work. It shall be in the Contractor's responsibility to maintain the prepared surface until surfacing or establishment.

B. The upper 8 inches of the subgrade on newly constructed earth subgrades in pavement construction locations shall be reworked and recompacted in accordance with Section 120.3 B.3.a prior to placing granular materials. This requirement shall be waived for A-3 and A-2-4(0) soils.

C. Rough grade areas adjacent to structures to drain away from structures and prevent ponding or increase in soil lateral pressure on structure.

D. Uniformly grade areas of Project including adjacent transition areas to approximate contours of finished surface, and smooth surface within specified tolerances with uniform levels or slopes between points where elevations are indicated, or between such points and existing grades.

E. Slope grade away from buildings at slope not less than 5% for minimum distance of 10-ft. in turf establishment areas, unless otherwise indicated on Drawings. Make gradual grade changes. Blend slope into level areas.

F. Positively drain all turf establishment areas to designated surface water collection points, streets, and/or waterways.

G. Verify subgrade has been contoured and compacted prior to finish grading.

H. Remove all construction debris prior to topsoil placement.

I. Perform subsoiling of subgrade to minimum depth of 6-in for turf establishment areas where subgrade has become compacted prior to topsoil placement, including the following locations:
   1. Where equipment has been operated in performance of Work including haul roads.
   2. Equipment and material staging and stockpiling areas.
   3. Infiltration areas.

J. Place stockpiled topsoil from Site, or import and place topsoil borrow type specified as necessary in turf establishment areas to minimum thickness of 6-in., unless otherwise indicated on Drawings.

K. Place topsoil during dry weather.

L. Spread topsoil by hand near plants and trees to prevent damage.

M. Prepare topsoil surface for turf establishment using cultivating equipment such as disks, harrows, field diggers, or tillers capable of loosening soil to minimum depth of 3-in. on all areas except for slopes steeper than 2:1 (H:V) to provide a smooth, moist, and evenly textured foundation.

N. Perform soil tracking of topsoil on slopes 2:1 (H:V) and steeper prior to turf establishment.

O. Following soil loosening operations, work turf establishment areas to be seeded or sodded to provide surface free of lumps, and tillage ridges exceeding 1.5-in. Work turf establishment areas to be hydro seeded to provide surface free of lumps, and tillage ridges exceeding 3/4-in. Multiple passes of equipment may be necessary to meet these specifications.

P. Remove all rocks and debris from topsoil surface exceeding 1-in., except that lawn areas shall be raked free of rocks, clods, and debris exceeding 3/4-in.

3.07 TOLERANCES

A. Top Surface of pavement subgrade: Plus 0.08-ft. to minus 0.04-ft. from Drawing elevation.

B. Top Surface of building slab subgrade: Plus or minus 0.05-ft. from Drawing elevation.

C. Top Surface of turfed area subgrade: Plus or minus 0.10-ft. from Drawing elevation.

D. Top Surface of turfed area finish grade: Plus or minus 0.10-ft. from Drawing elevation.

3.08 FIELD QUALITY CONTROL

A. Coordinate for Owner's independent testing agency to perform visual inspection of load-bearing excavated surfaces before placement of structural foundations.

B. Coordinate for Owner's independent testing agency to perform density testing per the following:
   1. Obtain samples for testing from material in place at locations and by methods approved by Architect.
   2. Perform density testing in areas with greatest rutting or deflection.
   3. Perform Dynamic Cone Penetration (DCP) Index Method testing as outlined in 3.05 H.3 at not less than the following frequencies for indicated areas unless field conditions substantiate that frequency can be modified, and modification is approved by Architect.
      a. Site Grading Fill In Pavement Areas: Perform a minimum of 1 DCP test per 200 cubic yards of material placed.
   4. Perform soil density tests per ASTM D698 (standard Proctor test) at not less than the following frequencies for indicated areas unless field conditions substantiate that frequency can be modified, and modification is approved by Architect.
      a. Footing and Slab Structural Fill Areas: Perform a minimum of 1 approved density test per 500-cu.yd. (CV) of fill.
      b. Site Grading Fill In Pavement Areas: Perform a minimum of 1 approved density test per 4-ft. of fill for every 7,500-sq.ft. of fill area.
   5. Include in test reports project identification name and number, date of test, name of Contractor, name of testing laboratory, location of test including elevation, soil type, density obtained, and moisture content.
   6. Report verbal test results to Architect and Contractor on same day tests are made.
   7. Submit test reports to Architect and Contractor as soon as available.
   8. Soil density shall meet or exceed values specified above for fill at specific locations.

C. Coordinate for Architect (or Owner's independent testing agency) to observe Contractor roll testing per the following:
   1. Provide test roller meeting requirements of SDDOT testing requirements. Load truck such that front axle load is minimum of 16,000-lb., and total weight of truck and load is minimum of 50,000-lb. Weigh test roller at independent certified scale facility, and provide documentation to Architect.
   2. Provide deflection measurement device approved by Architect. Mount device over center of front axle and offset 12-in. from outside edge of each tire.
   3. Construct subgrade surface for test to within 4-in. of design cross section and profile, and free of marks, tracks, ruts, or ridges.
   4. Protect structures from damage caused by test roller.
   5. Test roll entire length and width of pavement subgrade in presence of Architect at operating speed from 2.5-mph to 5-mph. Roll first pass with outside wheel at edge of test area, and offset subsequent passes with one wheel centered between wheel path of previous pass, until surface is covered at approximately 4-ft. interval between center of each pass.
   6. Architect shall observe testing from behind roller, measure deflection using device on truck from top of unrolled surface to bottom of rut at time of rolling, and mark and record

failing areas immediately.

7. Subgrade deflection shall not exceed 2-in.

D. Perform corrective work on failing areas when test results indicate specified values where not attained.

E. Coordinate and pay for re-testing following corrective work. All subsequent Work placed before corrective work and passing retest constitutes Unauthorized Work.

3.09 CLEANING AND PROTECTION

A. Dispose of waste and excess soil material offsite and under conditions that are in accordance with Federal, State, and local laws and regulations at own cost.

B. Barricade open excavations occurring as part of this Work and post warning lights. Operate warning lights during hours of dusk to dawn each day and as otherwise required.

C. Prevent displacement of banks and keep loose soil from falling into excavation; maintain soil stability.

D. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.

E. Repair disturbed areas and compact to required density prior to subsequent Work.

F. Protect areas that have been finish graded from subsequent construction operations, traffic, and erosion.

END OF SECTION

SECTION 31 2317
TRENCHING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Work to provide all labor, materials, tools, and equipment necessary or incidental to trench, backfill, and compact Site for underground utilities as indicated in Contract Documents.

1.02 PRICE AND PAYMENT PROCEDURES

A. All removal and disposal required; sheeting, shoring and bracing; source quality control testing and other Work required under this Section shall be considered incidental to Project and no claim for compensation or extra work will be accepted.

B. No claim for additional payment will be accepted for excavation and fill required for removal of unsuitable material of up to 12-in. below bottom of foundation, 12-in. below bottom of structural fill, or 12-in. below minimum excavation limit indicated on Drawings, whichever results in greater excavation and fill.

C. Excavation and fill required for removal of unsuitable material deeper than above limits will be paid for as Extra Work.

D. Provide Work under unit price method per Proposal and the following:
   1. Provide utility pipe trenching and backfilling without measurement, incidental to Project.

E. Furnishing and installing of specific items and/or performance of Work under certain circumstances shall not be individually paid. Costs shall be included in unit price bid for associated trenching and underground utility items. Such items of Work include but are not limited to:
   1. Examining Site prior to beginning Work.
   2. Protection of Site features, utilities, trees, and vegetation to remain from damage.
   3. Stockpiling of trench material for reuse.
   4. Dewatering of trenches.
   5. Backfilling and compacting of trenches.
   6. Lab and field testing of trench areas.
   7. Disposal of waste and excess soil material.
   8. Protection of trench areas.

1.03 DEFINITIONS

A. Structure: Existing and new man-made features including, but not limited to buildings foundations, footings, slabs, pump stations, manholes, catch basins, drop inlets, retaining walls, and other structural elements and systems.

B. Topsoil: Organic soil material, typically found at top of soil horizon and black in color use as a medium to establish plant growth for water quality and permanent erosion protection.

C. Select Grading Material: Mineral soils found in the Triaxial Chart, excluding silt. Silt is defined as soils containing 80% or more silt-sized particles. Marl and organic soils are also excluded.

D. Suitable Subsoil Material: Excavated Select Grading Material that will provide for indicated soil bearing capacity, soil densities, material requirements and that, in opinion of soil testing laboratory, will not be subject to future decomposition, settlement, subsidence, expansion, and are otherwise of required soil type.

E. Unsuitable Subsoil Material: Excavated material that will not provide for indicated soil bearing capacity and soil densities and that in opinion of soil testing laboratory will be subject to future decomposition, settlement, subsidence, expansion, and are otherwise not of required soil type, as well as material that exceeds 1-cu.yd. in volume, cannot be re-used within project limits, and in opinion of Architect requires special means for handling and disposal including but are not limited to organic soils, rubble, wood debris, boulder stone, masonry, concrete fragments, and metals.

1.04 REFERENCE STANDARDS

A. SDDOT Specification Section 120 - Roadway and Drainage Excavation and Embankment Construction; current edition.

B. SDDOT Specification Section 421 - Box, Pipe, and Plate Pipe Culvert Undercutter; current edition.

C. SDDOT Specification Section 450 - Pipe Culverts; current edition.

D. SDDOT Specification Section 671 - Manholes; current edition.

E. AET Geotechnical Exploration Report; July 17, 2023 .

1.05 ADMINISTRATIVE REQUIREMENTS

A. Obtain required permits for Work.

1.06 SUBMITTALS

A. Manufacturer's Certification: Certificate of compliance for all materials, supplies, and equipment provided.

B. Lab Test Reports: As specified; include source of each material tested and date sampled.
   1. Gradation
   2. Percent Crushing
   3. Aggregate Quality

1.07 DELIVERY, STORAGE, AND HANDLING

A. Stockpiles:
   1. Place material on Site at location approved by Owner until required for incorporation into Work.
   2. Locate to limit additional loading or soil pressure on Site excavations and structures.
   3. Place, grade, and shape for proper drainage.
   4. Limit depth not to exceed 8-ft.
   5. Separate differing materials with dividers or stockpile separately to prevent intermixing.
   6. Prevent material contamination.
   7. Protect from erosion and deterioration of materials.

1.08 WARRANTY

A. Correct defective Work within correction period after Date of Substantial Completion.
   1. Assume full responsibility and expense for all settlement, and refill and restore Work as directed to maintain an acceptable surface condition regardless of location.
   2. Settlement of pavement areas in excess of 1-in., as measured by a 10-ft. straight edge shall be considered failure of mechanical compaction.

PART 2 PRODUCTS

2.01 MATERIALS

A. Excavation Material:
   1. Common Excavation: Excavated material not classified as Rock Excavation, but including stripped topsoil material.
   2. Rock Excavation: Material including hard, solid rock in ledge formation, bedded deposits and unstratified masses; all natural conglomerate deposits so firmly cemented as to present all characteristics of solid rock; and any boulder stone, masonry or concrete fragments exceeding 1 cu.yd. in volume that requires drilling, or ripping before excavation. Material such as shale, hard pan, soft or disintegrated rock which can be dislodged with a hand pick or removed with a power operated excavator are not classified as Rock Excavation.

B. Granular material for foundation/trench stabilization, bedding, encasement, backfill, or other utility construction purposes as may be specified shall consist of any natural or synthetic mineral aggregate such as sand, gravel, crushed rock, crushed stone, or slag that shall be so graded as to meet gradation requirements specified herein for each particular use by material manufacturer or as indicated in Contract Documents. Use of existing soils as granular material shall follow recommendations in the Geotechnical Report.
   1. Foundation/Trench Stabilization:
      a. Material placed below bottom of pipe grade as recommended by Architect or soils testing laboratory as replacement for unsuitable or unstable subsoils, to achieve improved foundation support.

b. Shall be 3/4-in. to 4-in crushed angular, well graded material. Larger material may be used if necessary, required, and approved by engineer to stabilize the bottom of the trench. The trench stabilization material will be used as directed by the Engineer. The use of trench stabilization material will not eliminate the need for bedding material.

2. Bedding:
   a. Material placed below pipe springline, prior to pipe installation, to facilitate proper shaping and to achieve uniform pipe support.
   b. Sanitary Sewer
      1) Material placed to top of pipe. Material below springline to be placed prior to pipe installation, to facilitate proper shaping and to achieve uniform pipe support.
      2) 1/4-in to 3/4-in clean angular, crushed rock with the following gradation requirements:
         (a) 95 percent passing 3/4-in sieve
         (b) 95 percent retained in the No. 4 sieve
         (c) Well graded
   c. Storm Sewer
      1) Material placed below pipe springline, prior to pipe installation, to facilitate proper shaping and to achieve uniform pipe support.
      2) Class I: Crushed rock or gravel
         (a) 100 percent passing 1 1/2-in. sieve
         (b) less than 5 percent passing #200 sieve
      3) Class II: Coarse grained soils includes sand
         (a) 100 percent passing 1 1/2-in. sieve
         (b) less than 5 percent passing #200 sieve
      4) Compacted to 90 percent of standard proctor density
   d. Water Main
      1) Material shall be as specified in City of Hartford Engineering Specifications Section 300.
      2) Trench bedding shall be undercut a minimum of 6-inches below the grade line of the pipe and uniformly backfilled to the grade-line of pipe. After the pipe has been installed on top of the first layer of bedding material, the haunching area shall be backfilled with bedding material up to the "spring-line" (halfway) on the pipe. Material placed to a minimum of 6-in above top of pipe and a minimum of 12-inches on both sides of the pipe.
      3) Clean, dry sand may be used.

3. Backfill:
   a. Material placed below pavement base course, or below topsoil in turf establishment areas, to an elevation 12-in. above top of pipe at top of encasement material, as second stage of backfill, to minimize trench settlement and provide support for surface improvements.
   b. Shall consist of Suitable Subsoil Materials, except as otherwise specified in Contract Documents. Suitable Subsoil Material shall include mineral soil free of foreign materials (rubbish, organics, and debris), frozen clumps, oversize stone, rock, concrete or bituminous chunks, and other unsuitable material that may damage pipe, prevent thorough compaction, or increase risk of settlement.

4. Coarse Filter Aggregate:
   a. Material placed from an elevation 12-in. above top of pipe to 6-in. below bottom of pipe for pipe support and protection, and to help facilitate proper subsoil drainage. Shall meet gradation below.

Sieve Size	Percent Passing
1 in	100
3/4 in	85-100
3/8 in	20-60
No. 4	0-10

2.02 SOURCE QUALITY CONTROL

A. Coordinate and pay for independent testing agency to perform Source Quality Control testing per the following:

1. Obtain samples for testing from material in stock at locations and by methods approved by Architect.
2. Provide 1 gradation test of each aggregate material used as utility foundation, bedding, encasement, or coarse filter aggregate.
3. Provide 1 percent crushing test of each aggregate material used as utility foundation, bedding, encasement, or coarse filter aggregate.
4. Provide 1 aggregate quality test of each aggregate material used as utility foundation, bedding, encasement, or coarse filter aggregate.
5. Perform tests no more than 90 calendar days before Notice of Award.
6. Submit test results to Architect prior to delivering materials to Site.

B. Coordinate and pay to re-test material failing a test, or provide alternate acceptable material as necessary to satisfy Architect that requirements are met.

PART 3 EXECUTION

3.01 EXAMINATION

A. Determine to own satisfaction of location and nature of surface and subsurface obstacles and soil and water conditions that will be encountered during Work.
1. Test borings and other exploratory operations may be made by Contractor at own expense to make such determinations.
2. Make arrangements for soil investigations with Owner when applicable.
3. Claims for additional payment due of nature of subsurface in which Work of this Section is performed, or for repairs made to subgrade related to weather will not be permitted.

B. Verify that survey bench marks and intended elevations for Work are as indicated.

C. Verify that structural installations have been inspected prior to filling Work.

3.02 PREPARATION

A. Refer to Section 31 2200 - Grading for additional requirements pertaining to excavating, filling, and grading Work.

B. Identify required lines, levels, contours, and datum.

C. Stake and flag locations of known utilities.

D. Locate, identify, and protect from damage above- and below-grade utilities to remain.

E. Notify utility company to remove and relocate utilities if necessary.

F. Prevent interruption of existing utilities serving facilities occupied and used by Owner or others, except when allowed by utility owner and then only after acceptable temporary utility services have been provided.
1. Provide temporary services, complying with Federal, State, and local laws and regulations, and as acceptable to Owner, during any interruptions.

G. Maintain full access to project exits and entrances, fire hydrants, street crossings, sidewalks, and other points as designated by Owner to prevent significant interruption of accessibility.

H. Before beginning Trenching Work, perform Work specified in sections 31 0505 - Selective Demolition for Site Work, and 31 1100 - Clearing and Grubbing.

I. Maintain existing site drainage ways or provide new paths of drainage as required to perform Work.

J. Protect site features to remain, including but not limited to bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs, from lateral movement, settlement, undermining, washout, and other undesirable conditions created by Work.

K. Protect trees, plants, lawns, and other features to remain as a portion of final landscaping by providing substantial fencing around area. Place fencing for trees at outer drip line of branches; no grading is to be performed inside drip line.

L. Protect critical areas of Site from compaction as necessary including, but not limited to, infiltration, filtration, and biorention areas, wetland soil edges, certain utilities, Areas of Environmental Sensitivity, and those other areas as indicated on Drawings. Assume full responsibility for restoration Work to decompact such areas including subsoiling Work, and soil density testing to verify restoration to condition as good or better than existing as determined by Architect.

3.03 SOIL REMOVAL AND STOCKPILING

A. Stockpile excavated topsoil for re-used on Site; remove excess from Site.

B. Stockpile excavated suitable subsoil material for re-used on Site; remove excess from Site.

C. Remove excavated unsuitable subsoil material from Site.

3.04 TRENCHING

A. Remove topsoil from utility trench area, without mixing with foreign materials.

B. Do not remove topsoil when wet.

C. Remove subsoil from utility trench area.

D. Do not remove wet subsoil, unless it is subsequently processed to obtain optimum moisture content.

E. Reserve and segregate all suitable subsoil material, granular material, and topsoil from other materials and stockpile to extent practicable during excavation operations to permit best use of available materials at time of filling. Handle material as described incidental to Project with no additional compensation provided unless otherwise specified in Contract Documents.

F. Handle surplus material following filling as specified above.

G. When trenching through roots, perform Work to limit root disturbance and cut exposed roots clean with sharp tool.

H. Slope sides of trenches as required to provide stability and to comply with Federal, State, and local laws and regulations. Shore and brace trenches when required by Project conditions.

I. Utilize cofferdams, steel sheet piling, shoring, underpinning, and other systems required to prevent damage to existing utilities and structures, settlement, slope stability problems, and undermining.

J. Remove construction related protection systems after use is complete, in manner that will not loosen or damage soils, create slope stability problems, and otherwise damage existing or new utilities and structures.

K. Leave construction related protection systems in place subject to approval of Architect, when removal would create potential for damage to soil conditions, utilities, or structures.

L. Cut trench meeting the following requirements for locations where cover over top of utility pipe will exceed 15-ft.:
   1. For portion of trench below point 12-in. above top of pipe, provide nearly vertical side slopes.
   2. Excavate trench bottom width sufficient to allow for inspection of installation, and proper compaction of encasement material.
   3. Excavate trench bottom for utility pipes of diameter less than 42-in. to maximum width of outside utility pipe diameter plus 24-in.
   4. Excavate trench bottom for utility pipes of diameter from 42-in. to 54-in. to maximum width of 1.5 times outside diameter of utility pipe.
   5. Excavate trench bottom for utility pipes of diameter greater than 54-in. to maximum width of outside utility pipe diameter plus 36-in.

M. Provide higher class of bedding, higher strength pipe, or both as directed by Architect at own expense if maximum trench widths above are exceeded.

N. Do not disturb soil materials at or below utility bedding limits. Trench by hand when necessary to prevent damage to subsoil material to remain.

O. Do not interfere with 2:1 (H:V) bearing splay of structural foundations, unless otherwise approved by Architect.

P. Trim utility bottoms to required lines and grades to leave solid dense base of required bearing capacity.

Q. Trenching of unsuitable subsoil material encountered when establishing grade elevations shall be to depth recommended by Architect or soils testing laboratory beneath utilities to obtain design bearing capacity. Material excavation and handling to be considered incidental to foundation.

R. Removal of materials beyond required subgrade elevations or dimensions without specific approval of Architect or soils testing laboratory as well as filling, compaction, and remedial work recommended at over excavated area shall be at own expense.

S. Remove large stones and other hard matter that could damage piping or impede consistent backfilling or compaction.

T. Use of explosives for rock excavation, when applicable, is not permitted.

U. Rock excavation for construction of utilities, when applicable, shall be to depth 6-in. below required invert elevation of utility to allow for placement of specified bedding materials. All rock excavated shall be considered unsuitable subsoil material and removed from Site.

V. Dewater trenches as necessary for Performance of Work according to Section 31 2319 - Dewatering.

W. Grade top perimeter of trenches to prevent surface water from draining into trench.

X. Notify Architect immediately of unexpected subsurface conditions and discontinue affected Work in area. Allow reasonable amount of time for Architect to make assessment of conditions and determine alternate means of construction if necessary. As a minimum, Architect shall be allowed one Working Day from time of notification to make assessment and determination of alternate Work without submitting a Change Proposal for adjustment in Contract Price or Contract Times.

Y. Maintain trenches and prevent loose soil from falling into trench until ready to backfill.

3.05 BACKFILLING AND COMPACTING

A. Do not proceed with backfilling of trenches until completion of the following:
   1. Observation, testing, approval, and recording of locations of underground utilities.
   2. Removal of shoring, bracing, other protection systems, and backfilling and compaction of voids left by their removals.
   3. Removal of unsuitable subsoil materials, construction related debris, and excess materials.

B. Employ placement methods that do not disturb or damage other Work.

C. Backfill to subgrade elevation within specified tolerances unless otherwise indicated.

D. Do not place backfill on muddy surfaces, frozen ground, or on materials containing frost or ice.

E. Do not place backfill on or in water.

F. Verify ability of structures to support loads imposed by backfill.

G. Backfill all trenches by end of Working Day unless another method of protecting trench while Work is not being performed is approved by Architect.

H. Place backfill materials in compacted layers of thickness necessary to meet compaction requirements.

I. Limit backfill layer thickness to 8-in. in loose depth for material compacted by heavy compaction equipment, and 4-in. in loose depth for material compacted by hand operated tampers unless soil density tests substantiate specified densities will be obtained when material is placed in thicker lifts.

J. Place backfill material in lifts uniformly to same approximate elevation, not exceeding final grade height, in manner required to prevent creation of unbalanced soil lateral pressures, wedging action of materials, soil pressures that exceed design lateral soil conditions, and damage to structures.

K. Determine moisture content during compaction using test methods approved by Architect.

L. Apply water or aerate each backfill layer to extent required to obtain optimum moisture content for indicated compaction requirement.

M. Prevent free water from appearing on surface during or subsequent to compaction operations.

N. Maintain moisture content during compaction between 65% and 102% of optimum moisture content, unless otherwise approved by Architect.

O. Prevent free water from appearing on surface during or subsequent to compaction operations.

P. Remove and replace with acceptable fill material, or scarify and air dry otherwise acceptable subsoil material that is too wet to obtain specified soil density.

Q. Assist drying by disking, harrowing, or pulverizing, until moisture content is reduced to value required for compaction.

R. Hand tamp or utilize hand operated vibratory equipment when required to compact backfill material placed immediately adjacent to structures.

S. Compact each backfill layer to required density specified for each area classification.

T. Do not place additional fill layers until density of each layer in place complies with compaction requirements.

U. Compact to specified:
   1. Within upper 30-inches of pavement subgrade and full depth around utility structures compact to minimum 100% of maximum dry unit weight per ASTM D698 (standard Proctor test).
   2. Below upper 30-inches of pavement subgrade compact to minimum 95% of maximum dry unit weight per ASTM D698 (standard Proctor test).

3.06 TOLERANCES

A. Top Surface of pavement subgrade: Plus 0.05-ft. to minus 0.10-ft. from Drawing elevation.

B. Top Surface of building slab subgrade: Plus or minus 0.05-ft. from Drawing elevation.

C. Top Surface of turfed area subgrade: Plus or minus 0.10-ft. from Drawing elevation.

D. Top Surface of turfed area finish grade: Plus or minus 0.10-ft. from Drawing elevation.

3.07 FIELD QUALITY CONTROL

A. Coordinate for Owner's independent testing agency to perform density testing per the following:
   1. Obtain samples for testing from material in place at locations and by methods approved by Architect.
   2. Perform density testing in areas with greatest rutting or deflection.
   3. Perform soil density tests per ASTM D698 (standard Proctor test) at not less than the following frequencies for indicated areas unless field conditions substantiate that frequency can be modified, and modification is approved by Architect.
      a. Utility Trench Excavation Backfill Areas: Perform a minimum of 1 approved density test per 4-ft. of fill for every 250-ft. of trench.
   4. Include in test reports project identification name and number, date of test, name of Contractor, name of testing laboratory, location of test including elevation, soil type, density obtained, and moisture content.
   5. Report verbal test results to Architect and Contractor on same day tests are made.
   6. Submit test reports to Architect and Contractor as soon as available.
   7. Soil density shall meet or exceed values specified above for backfill at specific locations.

B. Perform corrective work on failing areas when test results indicate specified values where not attained.

C. Coordinate and pay for re-testing following corrective work. All subsequent Work placed before corrective work and passing retest constitutes Unauthorized Work.

3.08 CLEANING AND PROTECTION

A. Dispose of waste and excess soil material offsite and under conditions that are in accordance with Federal, State, and local laws and regulations at own cost.

B. Barricade open trenches occurring as part of this Work and post warning lights. Operate warning lights during hours of dusk to dawn each day and as otherwise required.

C. Prevent displacement of banks and keep loose soil from falling into trenches; maintain soil stability.

D. Protect bottom of trenches from freezing.

E. Repair disturbed areas and compact to required density prior to subsequent Work.

END OF SECTION

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SECTION 31 2319
DEWATERING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Work to provide all labor, materials, tools, and equipment necessary or incidental to surface and subsurface dewatering systems as necessary and indicated in Contract Documents.

1.02 PRICE AND PAYMENT PROCEDURES

A. Provide Work as incidental to Project.

1.03 REFERENCE STANDARDS

A. SDDOT Erosion & Sediment Control and Storm Water Management Course Manual

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate compliance with regulatory requirements, including but not limited to Federal, State, and local requirements pertaining to groundwater dewatering.

B. Obtain required permits for Work.

1.05 SUBMITTALS

A. Water Treatment Plan: When applicable.

PART 2 PRODUCTS

2.01 MATERIALS

A. Sediment Traps: Temporary basins with a stabilized outfall.

B. Dewatering Filter Bags: Made of non-woven geo-textile to filter out material.

C. Dewatering Dumpsters: Collect, treat and filter water.

D. Flocculants: Coagulate fine suspended particles in turbid water and allow the particles to drop out of solution faster than they would if left untreated.

PART 3 EXECUTION

3.01 SCOPE

A. Design dewatering systems to provide the following:
   1. Prevent flotation, uplift pressures, increased water pressures, and hydrostatic soil pressures, heaving, settlements, shifting, and related damage of existing or new structures, utilities, site items, and property.
   2. Maintain excavations free of water to extent required for Work and observations of these areas by Architect and soil testing laboratory.
   3. Prevent loss of soil material, boils, movement of fines, slope stability problems, undermining, and other disturbances to existing soils and rock formations.
   4. Prevent surface water and dewatering discharge related damages.
   5. Coordinate with surface water control systems.
   6. Conform to applicable government regulations and accepted engineering and construction practice.
   7. Dispose of water resulting from dewatering operations in a manner approved by the Engineer and South Dakota DANR

3.02 EXAMINATION

A. Examine Project Site and conditions under which dewatering Work is to be performed.

3.03 PREPARATION

A. Refer to Section 31 2500 - Erosion and Sediment Control for additional requirements pertaining to Erosion and Sediment Control Work.

B. Provide Water Treatment Plan for dewatering of turbid or sediment laden water in accordance with the following:
   1. Submit water treatment plan to Architect before dewatering.
   2. Do not begin Work until Architect accepts water treatment plan including any contractor required permits.

3. Include in water treatment plan use of sediment traps, vegetative filter strips, flocculants, or other water treatments in accordance with SDDOT Erosion & Sediment Control and Storm Water Management Course Manual.

C. Stake and flag locations of known utilities.

D. Locate, identify, and protect from damage above- and below-grade utilities to remain.

E. Notify utility company to remove and relocate utilities if necessary.

F. Prevent interruption of existing utilities serving facilities occupied and used by Owner or others, except when allowed by utility owner and then only after acceptable temporary utility services have been provided.
   1. Provide temporary services, complying with Federal, State, and local laws and regulations, and as acceptable to Owner, during any interruptions.

G. Protect site features to remain, including but not limited to bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs, from lateral movement, settlement, undermining, washout, and other undesirable conditions created by Work.

H. Maintain full access to project exits and entrances, fire hydrants, street crossings, sidewalks, and other points as designated by Owner to prevent significant interruption of accessibility.

I. Maintain existing site drainage ways or provide new paths of drainage as required to perform Work.

3.04 CONSTRUCTION

A. Conduct dewatering operations so as to prevent groundwater, subsurface water, flooding, and surface water from flowing into excavations, trenches, and surrounding areas until excavation, trenching, backfilling, and compaction Work is complete and until finished Work and adjacent structures are safe from damage.

B. Conduct dewatering operations continuously, without interruption, and take measures necessary including, but not limited to, providing standby equipment and constant monitoring to assure system remains operational and effective throughout dewatering period.

C. Continue dewatering operations until each structure or utility on Project Site is safe from damage, buoyancy, uplift, and increased hydraulic pressures or soil hydrostatic pressures which may develop as a result of dewatering operations, or when dewatering operations are reduced, interrupted, or stopped, and until the following:
   1. Structures, structural elements, soils, equipment, and other systems that will be resisting buoyancy, uplift, soil hydrostatic pressures, and water pressures are complete, in place, and structural materials have achieved their specified design and 28-day compressive strengths.

D. Shut off dewatering system at such rate to prevent quick upsurge of water, which may weaken underlying sub grade or surrounding soil.

E. Maintain drainage where drainage ways are obstructed by dewatering operations.

F. Prevent water accumulation in excavations and trenches. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades, foundations, and adjacent existing structures.
   1. Maintain pumps, well points, sumps, suction and discharge lines, temporary drainage ditches outside excavation limits, sheeting, and other dewatering systems and diversions necessary to convey water away from excavations, trenches, utilities, and adjacent structures.

G. Do not use excavations or trenches as temporary drainage ditches.

H. Provide detention, water quality, and discharge facilities for water from excavations, trenches, and dewatering operations as required by Federal, State, and local laws and regulations before discharging.

I. Protect discharge location of dewatering process from erosion by providing BMPs to control erosion and suspended sediment during dewatering operation.

J. Protect against damages caused by dewatering operations and damages caused by inadequate dewatering or water removal.

K. Repair all damages to new and existing Work within Project or on adjacent property caused by dewatering operations, flooding, groundwater, subsurface water, surface water and other damage caused by dewatering operations or failure to protect against damages at own cost.

END OF SECTION

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SECTION 31 2500
EROSION AND SEDIMENT CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Work to provide all labor, materials, tools, and equipment necessary or incidental as indicated in Contract Documents to:
   1. Prevent, control, minimize, or abate pollution of air, land and water.
   2. Prevent erosion.
   3. Prevent sedimentation of waterways, open drainage ways, and sewers.
   4. Manage storm water runoff and Project related discharges to prevent sediment pollution.
   5. Restore areas eroded due to insufficient BMPs.
   6. Implement SWPPP in compliance with Contract Documents.
   7. Compensate Owner for fines levied by authorities having jurisdiction due to non-compliance by Contractor.

1.02 DEFINITIONS

A. AES: Areas of Environmental Sensitivity.

B. BMPs: Best Management Practices for temporary storm water management & erosion and sediment control.

C. SD DANR: South Dakota Department of Agriculture & Natural Resources

D. SD DANR General Permit: SD DANR Permit; Gerneral Permit for Storm Water Discharges Associated with Construction Activities - Authorization to Discharge Under the Surface Water Discharge System

E. NOT: Notice of Termination to General Permit.

F. NPDES: National Pollutant Discharge Elimination System

G. Operator: Shall be Contractor (for permit process).

H. SWPPP: Storm Water Pollution Prevention Plan.

1.03 REFERENCE STANDARDS

A. SDDOT Specification Section 734 - Erosion Control and Water Pollution Control; 2015.

B. SDDOT Specification Section 831 - Geotextiles and Impermeable Plastic Membrane; 2015.

C. SDDOT Erosion & Sediment Control & Stormwater Management Course Manual

D. SDDOT Erosion & Sediment Control Construction Manual

E. SD DANR General Permit.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Comply with all requirements of SD DANR General Permit when operations disturb 1-acre or more of land area.

B. Do not begin clearing, grading, or other Work involving disturbance of ground surface cover until SD DANR General Permit has been obtained when applicable; furnish Owner documentation required to obtain permit.

C. Conduct operations to prevent, control and abate pollution of air, land and water per adopted and established Federal, State, and local rules, regulations and standards of the following as a minimum:
   1. South Dakota Department of Environment & Natural Resources.
   2. South Dakota Department of Transportation.
   3. U.S. Army Corps of Engineers.
   4. City of Hartford.

D. Comply with regulatory agencies for fertilizer and herbicide composition.

1.05 SUBMITTALS

A. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

B. Product Data: Provide manufacturer's data on BMPs and accessories.

C. Preliminary Erosion and Sedimentation Control Plan:
   1. Submit not less than 2 weeks prior to anticipated start of clearing, grading, or other Work involving disturbance of ground surface cover.
   2. Include:
      a. Site plan identifying soils and vegetation, existing erosion problems, and areas vulnerable to erosion due to topography, soils, vegetation, or drainage.
      b. Site plan indicating grading; new improvements; temporary roads, traffic accesses, and other temporary construction; and proposed BMPs.
      c. Where extensive areas of soil will be disturbed, include storm water flow and volume calculations, soil loss predictions, and proposed BMPs.
      d. Preliminary schedule of BMPs, in relation to ground disturbing activities.
      e. Other information required by law.
      f. Format required by law is acceptable, provided any additional information specified is also included.
   3. Obtain approval of Plan by authorities having jurisdiction and Owner.

D. Erosion and Sedimentation Control Schedule:
   1. Submit weekly.
   2. Include:
      a. Proposed BMPs and timing of installation.
      b. Grading operations.
      c. Maintenance or repair required on BMPs.
      d. Proposed BMPs during periods of suspension of Work.

E. Inspection Reports:
   1. Submit report of each inspection for Project closeout or more often as requested by Architect.
   2. Include condition of BMPs and required maintenance or repair.

F. Maintenance Instructions: Provide instructions covering inspection and maintenance of BMPs to remain after Substantial Completion.

PART 2 PRODUCTS

2.01 MATERIALS

A. Silt Fence: Consists of a temporary vertical barrier of fabric attached to and supported by woven wire and wood or steel posts and entrenched into the ground.
   1. Woven wire shall be 26 inch wide, 14 1/2 gauge and have six horizontal wires with 6 inch or 12 inch spacing of vertical stay wires.
   2. Posts shall be steel T line posts with 5 foot minimum length with 6-foot spacing or wood posts with 5 foot minimum lenth and 3 inch minimum diameter with 5-foot spacing.

B. Erosion Control Wattles: Consist of weed free straw, excelsior, or coconut husk encased in ultraviolet degradable/biodegradable netting. Must be on SDDOT Approved Product List.
   1. Anchors shall be 1"x2" or 2"x2" wooden stakes unless otherwise approved.

C. Stabilized Construction Access:
   1. Crushed Stone: Washed 1 1/2" - 3"
   2. Geotextile Fabric: SD DOT 831, Woven Separator Fabric - for separation of soil materials.

D. Inlet Protection:
   1. Frame: 11 gauge steel, corrosion resistant
   2. Sediment Bag: woven geotextile fabric
   3. Stainless steel locking band to secure bag to frame

E. Erosion Control Blanket (ECB): Only ECBs on the SDDOT Approved Product List will be allowed. Install in accordance with the plans.

F. Outlet Protection: Section 31 3700 and SDDOT Standard Plate 734.14

G. Concrete Washout

PART 3 EXECUTION

3.01 EROSION CONTROL SUPERVISOR

A. Provide Erosion Control Supervisor, authorized to represent Contractor on matters pertaining to Erosion and Stormwater Management, Work in public waters, SD DANR General Permit compliance, and available to Site within 24-hr. of initial disturbance and daily when Work is taking place until final stabilization.

B. Duties of Erosion Control Supervisor include the following:
   1. Amend SWPPP prior to beginning Work to identify Contractor's Erosion Control Supervisor as responsible party for implementation of SWPPP.
   2. Implement SWPPP until Work is complete, entire Site has undergone Final Stabilization, and NOT has been submitted to SD DANR.
   3. Ensure proper installation, functionality, and maintenance, clean-up, and removal of all erosion prevention and sediment control BMPs.
   4. Implement erosion and sediment control schedule.
   5. Coordinate Work of subcontractors and ensure full execution of BMPs for each operation and stage of Work.
   6. Oversee Work of subcontractors and ensure subcontractors undertake BMPs at each stage of Work.
   7. Prepare required weekly erosion control schedule and inspections with dates and times.
   8. Attend construction meetings to discuss erosion control schedule and inspections.
   9. Prepare erosion and sediment control Site Management Plans as required by Contract Documents or as directed by Architect.
   10. Provide for BMPs for temporary Work necessary, but not indicated on Drawings.
   11. Ensure effective BMPs are in place, recommend changes to SWPPP for Architect’s approval, and amend SWPPP to document changes.
   12. Ensure acquisition of and compliance with applicable permits for borrow pits, dewatering, and temporary Work in rivers, lakes and streams.
   13. Ensure full installation of BMPs before suspension of Work.
   14. Coordinate with federal, state, and local regulatory agencies on resolution of erosion and sediment control issues resulting from Work.
   15. Ensure that proper cleanup occurs from vehicle tracking on paved surface locations where sediment leaves Site.
   16. Ensure daily compliance with environmental laws, permits, and SWPPP narrative requirement.
   17. Ensure certification of installers for operations per SDDOT 734.3.

C. Erosion Control Supervisor is authorized to install, fix, or repair erosion or sediment control practices when a certified installer is unavailable.

3.02 CERTIFIED INSTALLERS

A. Provide certified installer to install or direct installations of BMPs including the following:
   1. Seeding
   2. Mulching
   3. Silt fence or other perimeter sediment control device installations
   4. Rolled Erosion Control Products installation
   5. Hydraulic Erosion Control Product installation

B. Failure to provide required certified installer may result in Architect rejecting Work as unauthorized work per Contract Documents.

3.03 SCOPE

A. Provide access for and cooperate with representatives of Owner and/or Architect and meet any other requirements if so directed.

B. Examine Site and identify existing features that contribute to erosion resistance; maintain such existing features to greatest extent possible.

C. Delineate areas of Site not to be disturbed before Work begins.

D. Install BMPs down gradient before, or in conjunction, with soil disturbing activities.

E. Schedule Work to minimize amount of time disturbed soil surfaces are left exposed per SD DANR General Permit requirements or more stringent requirements of local jurisdiction.

F. Provide and maintain BMPs as required by Contract Documents and per permits required for Work.

G. Adjust location of BMPs as necessary to maximize effectiveness of each device or measure.

H. Schedule and phase construction in and around AES, as indicated on Drawings to minimize potential of sediment entering into these areas. Use measures such as hand clearing and grubbing, limiting bare soil exposure time, expediting construction activities, and immediately establishing final vegetation to minimize sediment loss potential.

I. Provide erosion control and velocity dissipation BMPs within and along constructed stormwater channels to provide a non-erosive flow velocity, to minimize erosion of channels and embankments, outlets, adjacent stream banks, slopes, and downstream waters during discharge conditions.

J. Stabilize normal wetted perimeter of any temporary or permanent drainage channel that drains water from any portion of Site, or diverts water around Site, within 200 lineal feet from property edge, or from point of discharge into any surface water. Stabilization of last 200 lineal feet shall be completed within 24-hr. of connecting to surface water or property edge.

K. Stabilize remaining portions of any temporary or permanent drainage channels within 14 calendar days after connecting to surface water or property edge and Work in that portion of channel has temporarily or permanently ceased.

L. Temporary or permanent drainage channels being used as sediment containment systems with properly designed ditch checks, bio rolls, silt dikes, etc. do not need to be stabilized during temporary period of use as sediment containment system. Area shall be stabilized within 24-hr. after removal of temporary sediment containment measures.

M. Application of mulch, hydromulch, tackifier, polyacrylamide or similar erosion prevention practices is not acceptable stabilization of any temporary or permanent drainage channel.

N. Provide temporary or permanent energy dissipation BMPs at pipe outlets within 24-hr. of connecting to surface waters.

O. Direct discharges from BMPs to vegetated areas of Site (including natural buffers) to increase sediment removal and maximize stormwater infiltration unless infeasible due to lack of pervious or vegetated areas.

P. Recover sediment and restore property to pre-existing conditions at own cost when sediment loss from Site occurs.

Q. In all cases, if permanent preventive measures have been installed, temporary BMPs are not required.

R. Storm Water Runoff:
   1. Control increased storm water runoff due to disturbance of surface cover due to construction activities.
   2. Prevent runoff into sewer systems, including open drainage channels, in excess of actual capacity or amount allowed by authorities having jurisdiction, whichever is less.
   3. Anticipate runoff volume due to most extreme short term rainfall events that might occur in 25-yr.

S. Erosion On Site:
   1. Minimize wind, water, and vehicular erosion of soil on Site due to construction activities.
   2. Control movement of sediment from temporary soil stockpiles.
   3. Prevent development of ruts due to equipment and vehicular traffic.
   4. Restore eroded areas at no cost to Owner if erosion occurs due to non-compliance with these requirements.

T. Erosion Off Site:
   1. Prevent erosion of soil and deposition of sediment on other properties caused by water leaving Site due to construction activities.
   2. Prevent windblown soil from leaving Site.
   3. Prevent tracking of mud onto public roads outside Site.
   4. Prevent mud and sediment from flowing onto sidewalks and pavements.
   5. Restore eroded areas at no cost to Owner if erosion occurs due to non-compliance with these requirements.

U. Sedimentation of Waterways On and Off Site:
   1. Prevent sedimentation of waterways on and off Site, including rivers, streams, lakes, ponds, open drainage ways, and sewers.
   2. Unless Project has received approval or certification for depositing fill into a surface water, remove sediment deposits within surface waters and restabilize exposed soil area within 7 calendar days of discovery unless precluded by legal, regulatory, or physical access restraints. If precluded, perform removal and restabilization within 7 calendar days of obtaining access. Contractor is responsible for contacting all local, regional, State, and Federal authorities before working within surface waters and obtaining applicable permits.

V. Open Water: Prevent standing water that could become stagnant.

W. Shape exposed soil and incorporate BMPs as approved by Architect before suspending grading operations.

3.04 INSTALLATION

A. Temporary Sediment Basins and Traps:
   1. Construct temporary sediment basins concurrently with start of soil disturbing activities when required.
   2. Direct storm water runoff from localized watershed to basins.
   3. Mulch, seed, or both, exposed side slopes of basins meeting SD DANR and regulatory requirements.

B. Stabilized Construction Access:
   1. Provide and use at construction access to public right-of-way. Location indicated on Drawings is for reference only. Actual location to be determined by Contractor.
   2. Width: As required for on-site traffic; 25-ft. minimum.
   3. Length: 50-ft. minimum.
   4. Excavate minimum of 6-in.
   5. Place geotextile fabric full width and length, with minimum 12-in. overlap at joints.
   6. Place and compact at least 6-in. of crushed stone.
   7. Prevent excessive tracking of mud onto right-of-way when necessary as determined by Architect by providing wheel washing area out of direct traffic lane with drain into sediment trap or alternate Architect approved BMP.

C. Linear Sediment Barriers: Made of silt fences or sediment control logs.
   1. Provide linear sediment barriers:
      a. Where indicated on Drawings, as directed by Architect, and as necessary.
      b. Along downhill perimeter edge of disturbed areas, including soil stockpiles, and parallel to contour of land, with ends wrapped uphill to prevent flow around them.
      c. Along top of slope or top bank of drainage channels and swales that traverse disturbed areas.
      d. Along toe of cut slopes and fill slopes.
      e. Perpendicular to flow across bottom of existing and new drainage channels and swales that traverse disturbed areas or carry runoff from disturbed areas; space at maximum of 200-ft. apart.
      f. Across entrances to culverts that receive runoff from disturbed areas.
   2. Space sediment barriers with the following maximum slope length upslope from barrier:
      a. Slope of less than 2%: 100-ft.
      b. Slope between 2 and 5%: 75-ft.
      c. Slope between 5 and 10%: 50-ft.
      d. Slope between 10 and 20%: 25-ft.
      e. Slope over 20%: 15-ft.

D. Silt Fence:
   1. Store and handle fabric per ASTM D4873.
   2. Install with top of fabric at nominal height and embedment as specified.
   3. Do not splice fabric width; minimize splices in fabric length; splice at post only, overlapping at least 18-in., with extra post.
   4. Place bottom edge of geotextile into trench 6 in deep and 6 in wide and ensure compaction on both sides of geotextile.

E. Erosion Control Wattle:
   1. Prepare shallow (3-in to 5-in) trench for the erosion control wattle to be placed.
   2. Backfill and compact upgrade side of sediment control log with soil.
   3. Stake wattle through back half of wattle at 45-degree angle with top of stake pointed upstream. Space stakes every 2-ft. minimum and embed at least 9-in.
   4. If using more than one sediment control log for length, overlap ends 6-in. and stake both ends.
   5. For ditch checks, place wattle perpendicular to flow and in a crescent shape with ends facing upstream.
   6. Use wattle with a center section of ditch check one wattle diameter lower than ends. Space stakes every 12-in. minimum.

F. Storm Drain Inlet Protection:
   1. Implement BMPs to protect all given inlets throughout Work to prevent passage of sediments into and through underground drainage systems.
   2. Protect storm drain inlets, including manholes, catch basins, curb inlets, and other drop type inlets constructed for ingress of surface water runoff into underground drainage systems.
   3. Protect storm drain inlets with sediment capture BMPs before soil disturbing activities result in sediment laden storm water runoff entering inlet.
   4. Provide effective storm drain inlet protection until completion of paving or stabilizing of sources with potential for discharging to an inlet.
   5. Prevent or minimize potential for unsafe flooding or siltation problems.
   6. Regularly clean out BMPs and provide emergency overflow to reduce flooding potential.
   7. Place BMPs without creating driving hazards or obstructions.

G. Storm Drain Curb Inlet Sediment Trap:
   1. Provide for any inlet with potential to receive stormwater runoff from Site.
   2. Manufactured drop in product: As indicated on Drawings.

H. Stockpiles:
   1. Provide and maintain perimeter protection as necessary.
   2. No stockpiles containing more than 10-cu.yd. of material shall be located with a down-slope drainage length of less than 25-ft. from the toe of pile to a roadway or drainage channel.

3.05 EMERGENCY WORK

A. Conduct Emergency corrective work followed by installation of necessary BMPs within 24-hr. written notice from Architect of sudden occurrence of a serious and urgent nature that is beyond normal maintenance of BMPs, and which requires immediate mobilization and movement of necessary personnel, equipment, and materials to emergency site.

3.06 MAINTENANCE

A. General:
   1. Inspect BMPs weekly, within 24-hr. after end of any storm that produces 1/2-in. or more rainfall at Site, and daily during prolonged rainfall.
   2. Inspect vehicle exit areas from Site daily and keep clean of excess soil by routine sweeping with Architect approved pickup broom.
   3. Repair or replace plugged, torn, displaced, damaged, or non-functioning BMPs within 24-hr. of discovery or as soon as practicable as approved by Architect.
   4. Maintain BMPs until permanent measures have been established.
   5. Should Contractor fail to provide appropriate BMPs as determined by Architect, Owner may issue a written order to Contractor. Contractor shall respond to written order within 24-hr. with sufficient personnel, equipment, and/or materials and conduct required Work or be subject to a daily Contract Price deduction of $500 for non-compliance, on a calendar day basis.
   6. Should installed BMPs fail as determined by Architect, Contractor shall correct cause of failure and remedy all sediment deposition to fullest extent possible. If corrective action is not taken in a timely manner, Owner may issue a written order to Contractor. Contractor shall respond to written order within 24-hr. with sufficient personnel, equipment, and/or materials and conduct required Work or be subject to a daily Contract Price deduction of

$500 for non-compliance, on a calendar day basis.

B. Temporary Sediment Control Devices:
   1. Remove sediment from devices such as bale barriers, silt fences, ditch checks, sediment control logs, and perimeter controls weekly and when sediment reaches one-third of height of device. Reshape area as indicated on Drawings.
   2. Replace non-functional devices and devices damaged by sediment removal.
   3. Perform sediment removal within 24-hr. of discovery or as soon as field conditions allow access.

C. Sediment Basins and Traps:
   1. Drain basin and remove sediment when depth of sediment collected in basin reaches 50% of height of riser or 50% of storage volume.
   2. Complete drainage and removal within 72-hr. of discovery or as soon as field conditions allow access.
   3. Remove sediment to original designed or excavated grade or as necessary to restore function of BMP.
   4. Clean out and shape temporary sedimentation basins intended for use as permanent water quality management basins as indicated on Drawings.

D. Storm Drain Inlet Protection Devices:
   1. Clean, remove sediment, or replace storm drain inlet protection devices on a routine basis to ensure full functionality of devices for next rainstorm event.

3.07 CLEANING

A. Remove and dispose of BMPs after completing Work unless otherwise required by Contract Documents or directed by Architect.

B. Clean out BMPs that are to remain as permanent measures.

C. Place removed sediment in appropriate locations on Site to form suitable surface for turf establishment; do not remove from Site.

D. Where removal of BMPs would leave exposed soil, shape surface to an acceptable grade and finish to match adjacent ground surfaces.

E. Remove silt curtain upon completion of Work. Do not allow re-suspension of sediment or loss of trash and oil into water during silt curtain removal.

END OF SECTION

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SECTION 33 1118
WATER DISTRIBUTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Work to provide all labor, materials, tools, and equipment necessary or incidental to watermain Work as indicated in Contract Documents and in accordance with the State Plumbing Code, and Ten State Standards, following whichever is more restrictive in regards to that specific item.

1.02 PRICE AND PAYMENT PROCEDURES

A. Provide Work under unit price method per Proposal and the following:
   1. Measure pipe for watermain and service by length in linear feet (LF) of each size, type, kind, and strength class along longitudinal centerline of pipe from beginning to end of each installation without deduction for fittings or valves. Work shall include the following:
      a. Measure pipe from spigot or cut end, base of hub or bell end, center of valves or hydrants, intersecting centers of tee or wye branch service connections, and center of corporation stop or curb stop couplings.
      b. Measure service pipe from center of watermain to center of curb stop plus 1-ft. for slack.
      c. Items incidental to pipe include, but are not limited to, trenching and backfilling, gaskets, jointing, polyethylene encasement, tracer wire including connectors, boxes, and grounding, and field quality control testing.
   2. Measure valve by number per each (EA) for each size and type including valve box, valve box setting, valve adapters, and polyethylene encasement.
   3. Measure corporation stops per each (EA) for each size and type including watermain tap and saddle.
   4. Measure curb stops by number per each (EA) for each size and type including curb box.
   5. Measure hydrants by number per each (EA) for each size and type as a unity. Work shall include the following:
      a. Items incidental to hydrants include, but are not limited to, installation, hydrant, crushed rock, base, blocking, joint restraint, and polyethylene encasement.
   6. Measure fittings per each (EA) for each size and type.
      a. Items incidental to fittings include, but are not limited to, joint accessories including thrust blocking and polyethylene encasement, unless otherwise provided in Contract Documents.
      b. Fittings include bends, tees, crosses, wyes, caps, etc.
   7. Measure connection of proposed pipe to existing pipe by items required for connection as each (EA) of each type of item. Work shall include the following:
      a. Items required for connection of proposed pipe to existing pipe include, but are not limited to, necessary couplings and accessories, and are called out on plans.
   8. Measure valves box replacements per each (EA).
      a. Items required for replacement of valve boxes on existing water valves. Includes valve adaptor and any materials, equipment, and labor necessary to complete item.
   9. Measure valve box adjustments per each (EA) on existing and proposed valve boxes within paved areas.
      a. Items required to adjust valve boxes to finished surface in paved areas. Valve adjustment to finished grade in unpaved areas will be considered incidental to related items.
   10. Measure mechanical joint restrainer devices (glands) per each (EA) for each type and size.
      a. Items incidental joint restrainers include, but are not limited to, nuts, bolts, sacrifical anode, coating, etc.
   11. Measure watermain bedding material per lineal foot (FT) per length of pipe installed, regardless of pipe size.
      a. Includes requirements set for in Section 31 2317 - Trenching
   12. Measure fire hydrant extension per each for each length of extension required.
      a. Items required for extension include, but are not limited to, excavation, backfill, nuts, bolts, sacrificial anode, coating, etc.

13. Measure Hydrostatic Pressure Testing per foot of water main installed and test. Payment will only be made for the passing test. All costs associated with a failed test will be the sole responsibility of the Contractor.

B. Furnishing and installing of specific items and/or performance of Work under certain circumstances shall not be individually paid. Costs shall be included in unit price bid for associated watermain utility items. Such items of Work include, but are not limited to:
   1. Interference with other underground structures and utilities.
   2. Removal and restoration, or protection of existing utilities which are indicated on Drawings and for which there is no bid item for removing and restoring, or working around utility.
   3. Unless separately itemized in Schedule of Unit Prices, any dewatering necessary for watermain construction.
   4. Locating an existing watermain.
   5. Furnishing and installing electrical connections to in-place watermain.
   6. Bedding and encasement materials.
   7. Thrust blocking or metal ties.
   8. Compaction, hydrostatic, leakage, coliform bacteria and continuity testing.
   9. Delays due to other utility conflicts, which result during course of construction.
   10. Protecting existing improvements from damage.
   11. Valve operating nut, and extension rods.
   12. Extension rods for curb stops.
   13. Polyethylene encasement of pipe and fittings.
   14. Trace wire and terminal boxes.
   15. Disinfection, including treating all pipe and fittings with chlorine tablets or chlorine powder and flushing as described in AWWA C651 - Disinfecting Watermains.

1.03 REFERENCE STANDARDS

A. SDDOT Specification Section 671 - Manholes; 2015.

B. City of Hartford Standard Specifications Section 300 - Water Main Construction; current edition.

C. South Dakota Plumbing Code.

D. Ten State Standards.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Obtain required permits for Work.

1.05 SUBMITTALS

A. Manufacturer's Certification: Certificate of compliance for all materials, supplies, and equipment provided.

B. Product Data: Provide manufacturer's data on pipe, fittings, valves and accessories.

C. Shop Drawings: Indicate structure locations, elevations, pipe sizes, and location and elevations of penetrations.

D. Record Documents: Include location of piping, valves, connections, thrust restraints, and invert elevations. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

E. Bacteriological Report (to be collected by City personnel):
   1. Date issued, project name, and testing laboratory name, address, and telephone number.
   2. Time and date of water sample collection.
   3. Name of person collecting samples.
   4. Test locations.
   5. Initial and 24-hr. disinfectant residuals in ppm for each outlet tested.
   6. Coliform bacteria test results for each outlet tested.
   7. Certification that water conforms, or fails to conform, to bacterial standards of the State of South Dakota.

1.06 QUALITY ASSURANCE

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum 3-yr. documented experience.

B. Testing Firm: The samples must be submitted to a health laboratory acceptable to the state DANR, which includes the City of Sioux Falls health lab.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store fittings and appurtenances in shipping containers with labeling in place.

B. Store pipe on a clean and stable surface. Ensure that pipe remains free of material and debris.

C. Store and handle pipe and appurtenances as recommended by manufacturer to prevent scratching, cutting, or gouging.

PART 2 PRODUCTS

2.01 AGGREGATE FOUNDATION, BEDDING, ENCASEMENT, AND BACKFILL

A. As specified in Section 31 2317 - Trenching.

2.02 TEMPORARY WATER SERVICE

A. Pipe and fittings:
   1. According to requirements of SDDOT Construction Specifications, NSF61 certified, and approved by manufacturer for above ground use.

B. Disinfection:
   1. Conform to AWWA C651 except minimum chlorine residual shall be 50 ppm.
   2. Temporary water service lines must be disinfected and tested for bacteriological quality prior to use.

2.03 WATER PIPE

A. General:
   1. NSF61 Certified.
   2. Virgin material that is homogeneous throughout, and free of visible cracks, holes, foreign material, blisters, and other deleterious faults.
   3. Discard and remove from Site any pipe with defects greater than 10% of wall thickness, concentrated ridges, discoloration, excessive spot roughness, pitting, variable wall thickness, or other defects of manufacturing or handling.
   4. Provide pipe and fittings of each material type from same manufacturer.
   5. Method of joining dissimilar materials and any special fittings employed shall be subject to approval of Architect.
   6. Service installation shall include all water pipe of 3-in. nominal inside diameter and less.

B. Polyvinyl Chloride (PVC) Pipe:
   1. Design and Thickness: (Ductile iron pipe equivalent outside diameters)
      a. Pipe sizes 4-in. to 12-in.: AWWA C900 DR-18 (235-psi)
      b. Pipe sizes 14-in. to 24-in.: AWWA C905 DR-18 (235-psi)
   2. Material: ASTM D1784, cell classification 12454
   3. Joints: Use push-on type, unless otherwise specified in Contract Documents or authorized by Architect.
      a. Push-on: AWWA C900 or C905, and ASTM D3139
      b. Mechanically Restrained: Ductile iron mechanical device designed for joint restraint of AWWA C900 or C905 pipe per ASTM F1674.
      c. Integrally Restrained: AWWA C900 or C905 pipe with restraining system manufactured integrally into pipe end.
   4. Gaskets: ASTM F477

C. Horizontal Directional Drilled Pipe: Refer to Trenchless Pipe Installation.

2.04 FITTINGS

A. Gray Iron Fittings: Not permitted.

B. Ductile Iron Fittings (for use with either DIP or PVC Pipe):
   1. Design: AWWA C153
   2. Working Pressure:
      a. For pipe sizes 3-in. through 24-in.: 350-psi.
      b. For pipe sizes 30-in. through 48-in.: 250-psi.
   3. Coating: Interior and exterior fusion-bonded epoxy coating per AWWA C116.

4. Joints: Mechanical restraint system with gland using breakaway torque bolts to engage thrust restraint, and concrete thrust blocking as indicated on Drawings.
5. Gaskets: AWWA C111

2.05 HYDRANTS

A. Comply with City Specifications and the following requirements;
1. Valve Opening Diameter: Minimum 5 1/4-in., and shall be of compression type, opening against pressure and closing with pressure.
2. Bury Length: Generally be 8-ft. Furnish depth required so that branch service is set at no more than 4% grade and groundline groove matches ground at hydrant location. Verify requirements in field prior to ordering hydrant.
3. Hydrant Extensions: If required, furnish in multiples of 6-in. with rod and coupling to increase barrel length.
4. Valve Seat and Threads: Bronze.
5. Draining System: Bronze and positively activated by main operating rod.
6. Hydrant shall permit removal of all working parts through standpipe without need for excavation.
7. Hose and Streamer Connection: Size and thread type required by City. Caps shall be equipped with chains.
8. Hydrant Base Connection: 6-in. mechanical joint for 5-1/4-in. hydrant valve opening.
9. Operating Nut: Pentagon shaped and measure 1 1/2 inches point to flat as required by City.
10. Finish: Factory finish with primer and two coats of enamel in color required by City.
11. Permanent Markings Indicating:
    a. Manufacturer's name.
    b. Year of manufacture.
    c. Bury depth.
12. External Bolts and Nuts: Stainless steel per ASTM A193, Grade B 8.
13. Provide reaction blocking, tie rods, or joint restraint to prevent movement.
14. Manufacturer: Waterous Improved Pacer Style, Model WB-67-250, with safety flange and stem coupling.

2.06 VALVES AND VALVE HOUSINGS

A. Valve Housing: Comply with City Specifications and the following
1. Valve Box (for underground valve installation): Cast iron, 2 or 3 piece screw type, suitable for depth of 4 to 6-ft. to center line of pipe with minimum 6-in. adjustment above and below specified pipe depth.
2. Valve box shaft shall be 5 1/4-in. inside diameter.
3. Provide lid with stay-put cover with raised letters indicating "WATER".
4. Extension: Shall be in lengths shown and be compatible with the valve boxes bid. Comply with above referenced standards and City Standard Detail 900.02.
5. Coating: Polyethylene encasement meeting all requirements of ANSI/AWWA C105/A21.5 and ASTM A674. Polyethylene shall be V-bio as manufactured by DIPRA, or approved equal.
6. Gate Valve Box Adapter: Adapter, Inc., or approved equal.
7. Valve and box are considered an integral unit.

B. Valve, General:
1. Manufacturer's name and pressure rating cast on valve body.
2. Direction of Opening: City of Hartford Engineering Standards Specifications
3. Joints:
    a. For buried installations, use mechanical joints per AWWA C111.
    b. For installations above ground and within structures, flanged with dimensions and drillings per AWWA C110.

C. Gate Valve:
1. Most current edition of AWWA C509 or C515, NSF61 certified, and the following:
    a. Working Pressure Rating: 200-psi.
    b. Valve Body and Bonnet: Ductile iron with fusion-bonded epoxy coating conforming to AWWA C550.

c. Mechanical Joint Ends: Fully machined hub end gasket seating surfaces to fixed dimensions and tolerances.
d. Trim: Bronze.
e. Single disk type with resilient seat bonded or mechanically attached to either gate or valve body, and wedge shall be ductile iron fully encapsulated with EPDM rubber, shall be symmetrical and seal equally well with flow in either direction.
f. Stem: Non-rising bronze or stainless steel, and shall be sealed by three o-rings. Comply with City of Hartford Standard Specifications.
g. Operating Nut: 2-in. ductile iron operating nut (open right - clockwise).
h. Bolts: Fluorocarbon coated low allow corrosion-resistant hight-strength steel manufactured in full conformance with the most current edition of ANSI/AWWA C111/A21.11
i. Operating Gears: Cut tooth steel gears, housed in heavy ductile or cast iron extended type grease cases.
j. Permanent Markings Indicating:
1) Open indicating arrow.
2) Manufacturer's name.
3) Pressure rating.
4) Year of manufacture.
5) Size

D. Tapping Valve:
1. Comply with resilient-seated gate valve requirements above with flanged inlet and mechanical joint outlet.
2. Tapping Sleeve:
a. Minimum 14 gauge body construction.
b. Stainless steel per ASTM A240, Type 304.
c. Must fully surround pipe.
d. Flanged with dimensions and drillings per AWWA C110 or ANSI B16.1 class 125.
3. Gasket:
a. To completely surround pipe.
b. Minimum thickness of 0.125-in.
c. Nitril rubber material.
4. Outlet Flange:
a. Stainless steel per ASTM A240, Type 304.
b. ANSI B16.1, 125 pound pattern.
5. Hex Nuts and Bolts: Stainless steel per ASTM A240, Type 304.
6. Valve, sleeve, and box are considered an integral unit.
7. Provide at location indicated on Drawing.
8. Manufacturer:
a. Ford FAST
b. Mueller H-304SS
c. Power Seal 3490
d. Smith-Blair 662 or 664
e. Approved equal.

2.07 MECHANICAL JOINT RESTRAINT SYSTEM:

A. Body: Ductile iron gland per ASTM A536 and AWWA C600 with fusion-bonded epoxy coating per AWWA C116.

B. Manufacturer:
1. Star Grip by Star Pipe Products
2. Mega-Lug by EBBA Iron
3. Approved equal.

C. Joint flexibility shall be maintained after burial of restraining mechanism.

2.08 T-BOLTS AND HEX NUTS:

A. Corrosion-resistant, high-strength, low-alloy steel per AWWA C111 with heat cured fluoropolymer coating equal to Cor-Blue, or approved equal.

2.09 TIE RODS:

A. Stainless steel, corrosion-resistant coating, or coated with Architect approved rustproofing material, and fully wrapped with V-bio as manufactured by DIPRA, or approved equal, 8 mil poly film.

2.10 SACRIFICIAL ANODE:

A. Each buried fitting, valve, and hydrant gland shall include two 6-ounce large zinc anode caps as manufactured by Trumball Industries, or approved equal.

2.11 CONDUCTIVITY:

A. Maintain through pipe and fittings

2.12 CONCRETE THRUST BLOCKS:

A. According to SDDOT Construction Specifications. Wood thrust blocking or wood shimming are not permitted.

2.13 POLYETHYLENE ENCASEMENT:

A. All buried ductile iron water main, fittings, valves, rods, hydrants, and appurtenances shall be encased in polyethylene that meets requirements for ANSI/AWWA C105/A21.5 and ASTM A674. Polyethylene shall be V-bio as manufactured by DIPRA, or approved equal.

B. Polyethylene shall consist of three layers of co-extruded linear low density polyethylene (LLDPE), fused into a single thickness of not less than 8 mils.

2.14 TRACER WIRE AND APPURTENANCES:

A. #12 AWG copper clad steel, with minimum 450-lb break load.

B. 30-mil thick blue HDPE insulation intended for direct burial use at 30 volts.

C. Connectors:
   1. Direct bury wire connectors shall include 3-way lockable connectors and mainline to lateral lug connectors specifically manufactured for use in underground tracer wire installations. Connectors shall be dielectric silicon filled to seal out moisture and corrosion, and shall be installed in a manner so as to prevent any uninsulated wire exposure.
   2. Non locking friction fit, twist on or taped connectors are not permitted.

D. Grounding:
   1. Ground rods shall be 3/8-inch diameter, 60-inch long steel rod uniformly coated with metallically bonded electrolytic copper. Ground rod clamps shall be a high-strength, corrosion-resistant copper alloy.

E. Termination Box:
   1. All tracer wire termination points shall utilize an approved tracer wire access box suitable for direct bury (above ground access box or grade level/in-ground access box as applicable), specifically manufactured for this purpose.
   2. All grade level/in-ground access boxes shall be appropriately identified per APWA Uniform Color Code.
   3. All tracer wire access boxes must include a manually interruptible conductive/connective link between terminal(s) for tracer wire connection and terminal for grounding anode wire connection.
   4. Manufacturer:
      a. SnakePit Light Duty Adjustable Box by Copperhead Industries LLC.
      b. Approved equal.

2.15 WATER SERVICE PIPE AND FITTINGS

A. General:
   1. Corporation stops, curb stops, tapping sleeve, and valve shall be furnished by the City.
   2. Permanently and plainly mark fittings with name or trademark of manufacturer.
   3. Threads for underground service line fittings: AWWA C800.
   4. Pipe and fittings with lead content exceeding weighted average of 8% in wetted surface material, as established in South Dakota Plumbing Code, shall be prohibited.

B. Water Service Pipe:
   1. 1-in., 1 1/2-in., or 2-in. inside diameters only.

2. Copper Pipe:
    a. Design: ASTM B88, Type K, Soft Annealed Temper.
    b. Joints: Compression connection.
3. Polyethylene Pipe:
    a. Design: AWWA C901.
    b. Working Pressure: 250-psi per ASTM D2737, DR 9.
    c. Joints: Serrated insert and clamp type fittings with all claming bands and tightening screws made of stainless steel or flared with compression fitting as defined in South Dakota Plumbing Code and Uniform Plumbing Code published by the International Association of Plumbing.
    d. Tubing Size: CTS (copper tubing size)
    e. Color: Blue.
    f. Polyethylene Compound: PE4710 per ASTM D3350.
    g. Mark pipe per AWWA C901. Marking shall be legible and remain legible under normal handling and installation practices.
        1) Indent marking may be utilized provided:
            (a) Marking does not reduce the wall thickness to less than minimum value for pipe or tubing
            (b) Marking does not reduce wall thickness to less than minimum value for pipe or tubing
            (c) Marks do not provide leakage channels when elastomeric gasket compression fittings are used to make joints.
    h. Manufacturer:
        1) Blue Ultra, PE 4710, CTS, by Polyethylene Technology Inc.
        2) Approved equal.
    i. Tracer Wire:
        1) Tracer wire shall be required and considered incidental on all non-conductive service pipe materials

C. Corporation Stop:
1. Ball style compression fitting.
2. AWWA standard threads on inlet side.
3. 300-psi working pressure rating.
4. Use stainless steel insert stiffeners in all applications where polyethylene CTS tubing is used in conjunction with compression fittings. Provide solid, 304 tubular stainless steel stiffeners, dimpled and flanged to retain placement within service line.
5. Hydraulic seal provided with corporation stop shall be affected by compression of a beveled rubber gasket, which simultaneously activates a mechanical (stainless steel) restraint ring as compression nut is tightened. Stainless steel restraint ring, retained within rubber gasket and having rubber ends, shall fully engage tubing circumference with both edges of crescent shaped ring.
6. Compression nut shall have an integrally cast lug specifically designed for attaching tracer wire when using polyethylene pipe. Lug shall have 1/4-in. diameter tracer wire hole, parallel to service line. An additional hole with tap, placed perpendicular to tracer wire hole, will include a 5/16-in. by 1-in. long (18 threads per inch) silicon-bronze slotted hex screw to permanently secure tracer wire within tracer wire hole.
7. Plug style corporation stops are not authorized for use and do not meet 300-psi working pressure rating.
8. Manufacturer: (for copper service lines)
    a. Mueller B-25008N
    b. AY MacDonald 74701BQ
    c. Ford FB1000-4-Q (1-in.)
    d. Approved equal.
9. Manufacturer: (for polyethylene service lines)
    a. Mueller B-25008N
    b. AY MacDonald 74701BQA
    c. Ford FB1000-4-Q (1-in.)
    d. Approved equal.

D. Curb Stop:

1. Ball style compression fitting.
2. 300-psi working pressure.
3. AWWA standard threads on inlet and outlet side.
4. Use stainless steel insert stiffeners in all applications where polyethylene CTS tubing is used in conjunction with compression fittings. Provide solid, 304 tubular stainless steel stiffeners, dimpled and flanged to retain placement within service line.
5. Hydraulic seal provided with curb stop shall be affected by compression of a beveled rubber gasket, which simultaneously activates a mechanical (stainless steel) restraint ring as compression nut is tightened. Stainless steel restraint ring, retained within rubber gasket and having rubber ends, shall fully engage tubing circumference with both edges of crescent shaped ring.
6. Compression nut shall have an integrally cast lug specifically designed for attaching tracer wire when using polyethylene pipe. Lug shall have a 1/4-in. diameter tracer wire hole, parallel to service line. An additional hole with tap, placed perpendicular to tracer wire hole, will include a 5/16-in. by 1-in. long (18 threads per inch) silicon-bronze slotted hex screw to permanently secure tracer wire within tracer wire hole.
7. Manufacturer: (for copper service lines)
    a. Mueller B-25155N
    b. AY MacDonald 76104Q
    c. Ford B44-444M-NLQ (1-in.) or B44-666M-NLQ (1 1/2-in.)
    d. Approved equal.
8. Manufacturer: (for polyethylene service lines)
    a. Mueller B-25155N
    b. AY MacDonald 76104QA
    c. Ford B44-444M-NLQ (1-in.) or B44-666M-NLQ (1 1/2-in.)
    d. Approved equal.

E. Curb Stop Box:
1. AWWA C800.
2. Minneapolis thread pattern with 1 1/2-in. top section.
3. Supported by minimum 3/4 of its thread diameter on body of curb stop.
4. 8-ft. long at full extension.
5. Manufacturer: (for copper service line)
    a. Mueller H-10302
    b. AY MacDonald 5622
    c. Ford EM2-80-67
    d. Approved equal.
6. Manufacturer: (for polyethylene service line)
    a. Ford EM2-80-67-TW
    b. Approved equal.

F. Service Saddle:
1. Saddle type tap required on all PVC and HDPE main line service connections, and on DIP main line service connections when service size is larger than maximum direct tap size outlined in table below:

Main Size (inch)	Pressure Class				
	150	200	250	300	350
	DIP Maximum Direct Tap Size (inch)				
4	-	-	-	-	3/4
6	-	-	-	-	1
8	-	-	-	-	1
10	-	-	-	-	1
12	-	-	-	-	1 1/4
14	-	-	1 1/4	1 1/2	1 1/2
16	-	-	1 1/2	2	2
18	-	-	2	2	2
20	-	-	2	2	2
20	-	2	2	2	2

2. Double bolt stainless steel type saddle with Nitrile (Buna N) rubber seal.
3. Manufacturer:
   a. Smith-Blair 372
   b. Cascade CSC2
   c. Ford FS313
   d. PowerSeal 3412AS
   e. Approved equal.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify items provided by other sections of Work are properly sized and located.

B. Verify built-in items are in proper location, and ready for roughing into Work.

C. Verify manufactured items delivered to Site are undamaged, stored properly, and ready for Work.

D. Notify Architect of damaged items for determination of acceptance or rejection.

E. Promptly remove rejected materials from Site.

3.02 TRENCHING

A. See Section 31 2317 - Trenching

B. Verify that trench cut is ready to receive Work and excavations, dimensions, and elevations are as indicated on Drawings.

C. Hand trim excavation for accurate placement of Work to elevations indicated.

D. Install and operate dewatering system to maintain all trenches free of water wherever necessary. Assume responsibility for any damage to adjacent structures or buildings caused by dewatering operations. Make own subsurface investigations and determine what dewatering methods to utilize to prevent such damage.

3.03 WATERMAIN SHUT-OFF

A. Provide Owner and Architect 24-hr. advance notice as to what watermain is requested to be shut-off and when.

B. Provide affected property owners 24-hr. advance notice before water service interruption.

C. Coordinate requirements for shutting off water system directly with Owner.

D. Provide temporary water service to all affected property owners in advance of Work when duration of shut-off will exceed 4-hr., and remove following completion of Work. Coordinate temporary water service Work directly with property owner.

3.04 CONSTRUCTION

A. Protect existing inverts during Work and clean if debris enters watermain.

B. Expose and verify location and elevation of existing water pipe prior to laying any pipe to or from connection point when connection to existing or proposed water pipe is made. If location or elevation of existing water pipe is different than location or elevation indicated on Drawings, notify Architect immediately, at which time Architect may adjust proposed alignment or grades. Allow reasonable amount of time for Architect to make assessment of conditions and determine alternate means of construction if necessary. As a minimum, Architect shall be allowed one Working Day from time of notification to make assessment and determination of alternate Work without submittal of Change Proposal for adjustment in Contract Price or Contract Time.

C. If an existing utility is indicated on Drawings and no bid item for removing and restoring, or working around utility is provided for Work, remove and restore, or protect utility incidental to Project.

D. Handle all materials carefully to prevent damage to protective coatings and linings, preclude contamination of interior areas, and avoid jolting contact, dropping, or dumping.

E. Repair/connect existing tile and storm sewer when encountered as directed by Architect.

3.05 CONSTRUCTION - PIPE, FITTINGS, AND APPURTENANCES:

A. Provide pipe, fittings, and appurtenances of size, type, and at location indicated on Drawings

B. Install per manufacturers' instructions and the following:
   1. PVC Pipe and Fittings: AWWA C605

C. All underground piping installed through proposed building areas or occupied by existing buildings shall comply with all appropriate provisions of State of South Dakota Plumbing Code.

D. Proceed with trench excavation and bedding preparations ahead of pipe placement as will permit proper laying and joining of units at prescribed grade and alignment without unnecessary deviation or hindrance.

E. Establish elevations of piping to ensure not less than 6-ft cover, unless otherwise indicated on Drawings.

F. Excavate trench for all pipe 6-in. below pipe barrel to permit installation of granular bedding or foundation material.

G. Bed pipe under ordinary trench conditions in compacted granular bedding from 6-in. below bottom of pipe to 6-in above top of pipe.

H. Where trench foundation has been found to be unstable and not suitable for bedding by Architect, install compacted foundation material as directed by the Engineer. If 6-in. of foundation material proves insufficient, request use of additional foundation material from Architect. No additional foundation material shall be used without prior approval of Architect.

I. When necessary, cut pipe ends square equal to a factor cut, ream pipe and tube ends to full pipe diameter, remove burrs.

J. Install V-bio polyethylene jacket on all ductile iron pipe.

K. Remove foreign matter or dirt from inside of pipe and fittings before lowering into position in trench and keep clean throughout installation.

L. Lower pipe into laying position with suitable restraining devices. Under no circumstances shall pipe be dropped into trench.

M. Prior to laying pipe, while suspended for lowering into trench, inspect pipe and appurtenances to detect damage or unsound conditions that may be cause for corrective action or rejection; notify Architect of any defects.

N. Immediately prior to laying pipe, inspect joint surfaces of pipe and fittings for presence of foreign matter, coating blisters, rough edges or projections, and correct by cleaning, trimming or repair as necessary.

O. Lay pipe with bell or grooved end upgrade starting from downstream end of installation unless otherwise allowed by Architect.

P. Mark spigot end of pipe as necessary to indicate point of complete closure. As each length of bell and spigot pipe is placed in laying position, center spigot end in bell and force "home" bringing pipe to correct line and grade.

Q. Install pipe to indicated elevation to within tolerance of 0.1-ft.

R. Route pipe in straight line unless otherwise indicated on Drawings.

S. Secure pipe in place in compacted granular encasement from 6-in. below pipe to 6-in. above top of pipe.

T. Comply with pipe manufacturer recommendations where deflection of joints is necessary to make satisfactory closure or produce required curvature, grade, or alignment, and shall not exceed that which will assure watertight joints.

U. Provide approved mechanical joint restraint in conjunction with concrete thrust blocking as indicated on Drawings on all watermain fittings, and adjacent pipe joints up and down stream of fittings when determined necessary according to industry approved thrust restraint design principles. Thrust restraint design shall include minimum safety factor of 1.5 to 1, and consider pipe material and size, soil type, trench type, bury depth, test pressure, fitting type, and any other pertinent design data.

V. Install access fittings to permit disinfection of water system as specified.

W. Bulkheading Open Pipe Ends:
   1. Provide and maintain temporary plug or cap for all pipe and fitting ends to be left open for future connection.
      a. Install prefabricated plug or cap for pipe sizes of 24-in. or less made of same material as pipe, or approved alternate material, to make watertight seal as required for pipe joints.
      b. Adequately block plug or cap in place to prevent flooding of existing downstream water system. Place plug or cap at beginning of Project or at end of each working day.

X. Sewer and Water Separation:
   1. Provide 18-in. minimum separation measured vertically between gravity sewer and water pipes with preference that water crossing above gravity sewer when possible.
      a. Center length of water pipe at point of crossing, so that joints are equidistant and as far as possible from sewer.
      b. Adequately support sewer and water pipe crossing to prevent settling and deflection of joints.
      c. When conditions prevent vertical separation described, provide gravity sewer constructed to equivalent watermain standards for 10-ft. on either side of crossing, and pressure tested to assure water tightness prior to backfilling.
   2. Provide 10-ft. minimum separation measured horizontally between gravity sewer and water pipes.
      a. When conditions prevent horizontal separation described, provide one of the following:
         1) Place bottom of water pipe 18-in. minimum above top of gravity sewer on undisturbed shelf; or
         2) Provide gravity sewer constructed to equivalent watermain standards and pressure tested to assure water tightness prior to backfilling.
   3. Provide 10-ft. minimum separation measured horizontally between sewer and water service pipes.
      a. When conditions prevent horizontal separation described, place bottom of water service pipe 12-in. minimum above top of sewer service on undisturbed shelf

Y. Refer to Section Trenchless Pipe Installation for Horizontal Directional Drilling installation requirements.

3.06 CONSTRUCTION - VALVES AND HYDRANTS

A. Set valves on solid bearing.

B. Center and plumb valve box over valve. Set box cover such that top is set at final grade.

C. Set hydrants plumb; locate pumper nozzle perpendicular to and facing roadway when applicable.

D. Set hydrants to grade, with nozzles at least 18-in. above ground but no higher than 24-in.

E. Install V-bio polyethylene jacket on all iron fittings and hydrant riser.

F. Plug hydrant drain hole outlet where groundwater table is above drain and equip with tag stating need for pumping after use.

3.07 CONSTRUCTION - POLYETHYLENE ENCASEMENT

A. All buried ductile iron water main, fittings, valves, rods, hydrants, and appurtenances, shall be fully encased in polyethylene
   1. Furnish tube form polyethylene for installation on pipe and all pipe-shaped appurtenances such as bends, reducers, off-sets, etc.
   2. Furnish sheet film polyethylene for all odd-shaped appurtenances such as valves, tees, crosses, etc.
   3. Install polyethylene tubing as follows:
      a. Install polyethylene tubing prior to lowering into trench.
      b. Tubing length shall be sufficient to provide a minimum overlap at all joints of 1-ft. minimum.
      c. Overlap may be accomplished with a separate sleeve tube placed over one end of pipe prior to connecting another section of pipe, or by bunching extra overlap material at pipe ends in accordion fashion.
      d. Following pipe jointing and positioning overlap material, overlap shall be secured in place with plastic adhesive tape wrapped circumferentially around pipe not less than three (3) times.
      e. Following encasement, circumferential slack in tubing film shall be folded over at top of pipe to provide a snug fit along barrel of pipe and be held in place with plastic adhesive tape applied at intervals of approximately 3-ft. along pipe length.
      f. Rips, punctures, or other damage to tubing shall be repaired as detected with plastic adhesive tape and overlapping patches cut from sheet or tubing material.
      g. At odd-shaped appurtenances such as gate valves, tubing shall overlap joint and be secured with tape, after which appurtenance piece shall be wrapped with a flat film sheet or split length of tubing by passing sheet under appurtenance and bringing it up around body. Seams shall be made by bringing edges together, folding over twice, and taping down.
      h. Where encasement is terminated, it shall extend for at least 2-ft. beyond joint area.
      i. Make openings in tubing for branches, service taps, air valves and similar appurtenances by cutting an X-shaped slit and temporarily folding back film. After installing appurtenance, cut tabs shall be secured with tape and encasement shall be completed as necessary for an odd-shaped appurtenance.

3.08 CONSTRUCTION - TRACER WIRE

A. Tracer wire shall be provided along axis of all non conductive pipe in such a manner to allow proper access for connection of line tracing equipment, proper locating of wire without loss or deterioration of low frequency (512Hz) signal for distances in excess of 1,000 linear feet, and without distortion of signal caused by multiple wires being installed in close proximity to one another.

B. Tracer wire system shall be installed as a single continuous wire, except where using approved connectors, and provide full tracing/locating capabilities from a single connection point. No looping or coiling of wire is permitted.

C. All mainline tracer wires shall be interconnected at intersections, at mainline tees and mainline crosses. At tees, three wires shall be joined using a single 3-way lockable connector. At crosses, four wires shall be joined using a 4-way connector. Use of two 3-way connectors with a short jumper wire between them is an acceptable alternative. Tracer wire shall be installed along bottom half of pipe and taped at 5-ft. intervals.

D. At all mainline dead-ends, tracer wire shall go to ground using an approved connection to a drive-in 3/8-in, 60-in long steel rod uniformly coated with metallically bonded electrolytic copper.

E. Mainline tracer wire shall not be connected to existing conductive pipes. Treat as a mainline dead-end, ground using an approved waterproof connection to a grounding anode rod buried at same depth as tracer wire.

F. All service lateral tracer wires shall be a single wire, connected to mainline tracer wire using a mainline to lateral lug connector, installed without cutting/splicing mainline tracer wire, and shall terminate at an approved tracer wire access box as specified.

G. Where an existing tracer wire is encountered on an existing utility that is being extended or tied into, new tracer wire and existing tracer wire shall be connected using an approved splice connector, and shall be properly grounded at splice location as specified.

H. Above-ground tracer wire access boxes shall be installed on all fire hydrants.

I. All conductive and non-conductive service lines shall include tracer wire.

J. Termination/Access:
   1. A minimum of 2-ft. of excess/slack wire is required in all tracer wire access boxes after meeting final elevation.
   2. Grounding anode wire shall be connected to identified (or bottom) terminal on all access boxes.
   3. Service Lateral locations on public property:
      a. Tracer wire shall terminate at an approved grade level/in-ground tracer wire access box, located at edge of road right-of-way, and out of roadway.
   4. Service Lateral locations on private property:
      a. Tracer wire shall terminate at an approved above-ground tracer wire access box, affixed to building exterior directly above where utility enters building, at an elevation not greater than 5-ft. vertically above finished grade, or terminate at an approved grade level/in-ground tracer wire access box, located within 2 linear feet of building being served by utility.
   5. Hydrant locations:
      a. Tracer wire shall terminate at an approved above-ground tracer wire access box, mechanically affixed to hydrant grade flange. (affixing with tape or plastic ties shall not be acceptable)
   6. Long-run locations, in excess of 1,000 linear feet without service laterals or hydrants:
      a. Tracer wire access shall be provided utilizing an approved grade level/in-ground tracer wire access box, located at edge of road right-of-way, and out of roadway. Grade level/in-ground tracer wire access box shall be delineated using a minimum 48" polyethylene marker post, color coded per APWA standard for specific utility being marked.

K. Grounding:
   1. Shall be properly grounded with anode at all dead ends/stubs as a minimum.
   2. Grounding anode shall be buried at same elevation as utility.
   3. When grounding at dead ends/stubs, grounding anode shall be installed in a direction 180-degrees opposite of tracer wire, and at maximum permissible distance.
   4. When grounding tracer wire in areas where tracer wire is continuous and neither mainline tracer wire or grounding anode wire will be terminated at/above grade, install grounding anode directly beneath and in-line with tracer wire. Do not coil excess wire from grounding anode, but trim to an appropriate length before connecting to tracer wire with a mainline to lateral lug connector.
   5. Where anode wire will be connected to a tracer wire access box, a minimum of 2-ft. of excess/slack wire is required after meeting final elevation.

L. Damage to tracer wire during installation shall be repaired immediately by removing damaged wire, and installing new wire with approved connectors. Taping and/or spray coating shall not be permitted.

3.09 FIELD QUALITY CONTROL

A. Coordinate field quality control testing per the following:
   1. Disinfect, Bacteriological Test, and Flush:
      a. Disinfect water system prior to being placed into service
      b. Provide and attach all equipment required to perform Work.
      c. Disinfection materials and procedures, and collection and testing of water samples shall be per AWWA C651
      d. Schedule disinfecting activity to coordinate with start-up, testing, adjusting and balancing, demonstration procedures, including related systems.
      e. Maintain disinfectant in system for minimum 24-hr.
      f. Flushing operations and form of chlorine and method of application to be used shall be subject to approval of Architect.

g. Flush, circulate, and clean until required cleanliness is achieved and check chlorine residual in pipe. Chlorine residual greater than found in surrounding water system shall be cause to continue flushing.
h. Replace permanent system devices removed for disinfection, testing, and flushing.

2. Hydrostatic Pressure Test:
   a. Following installation of pipe, fittings, valves, and blocking, all newly-laid watermain, unless directed otherwise by Architect, shall be subject to hydrostatic pressure of 120-psi for a test duration of at 2-hr.
   b. Watermain segments to be tested shall be filled with water and all air expelled at highest point. Required taps to expel air or to fill watermain shall be supplied and installed by Contractor and shall be 3/4-in. minimum and shall include an approved service saddle when required.
   c. Apply test apparatus at lowest elevation on test segment by means of a service tap, special tap, or hydrant.
   d. Test apparatus pressure gauge shall be a standard pressure gauge with a dial registering from 0 to 200-psi, and have a dial size of 4 1/2-in. with 1-psi increments.
   e. Hydrostatic test pressure requirement for an acceptable test shall maintain a pressure within 5-psi during last hour of 2-hr. pressure test.
   f. Investigate cause of any failing test, make corrections, and retest until pressure drop requirement is met.
   g. Where connecting watermain to existing valves, hydrostatic pressure test valve prior to making connection. In event valve fails test, Owner shall pay to replace gate valve and box at unit price bid. Alternatively, valve may be replaced without testing prior to making connection at own cost.
3. Tracer Wire Test:
   a. Locate all new tracer wire installations using typical low frequency (512Hz) line tracing equipment in presence of Architect prior to final acceptance. If tracer wire installations are not able to be located, make necessary repairs, and relocate new tracer wire in presence of Architect.
4. Operational Test:
   a. Prior to final acceptance, and in presence of Architect and Owner, operate all valves, hydrants, and water services to ascertain that entire facility is in good working order; that all valve boxes are centered and valves are opened; that all hydrants operate and drain properly; that all curb boxes are plumb and centered; and that water is available at all curb stops.
5. Trench Compaction Testing: Per Section 31 2317 - Trenching.

B. If tests indicate Work does not meet specified requirements, remove Work, replace and retest at no cost to Owner.

3.10 PROTECTION

A. Protect pipe and bedding cover from damage or displacement until backfilling operation is in progress.

END OF SECTION

SECTION 33 3114
SANITARY SEWER

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Work to provide all labor, materials, tools, and equipment necessary or incidental to sanitary sewer pipe and structure Work as indicated in Contract Documents

1.02 PRICE AND PAYMENT PROCEDURES

A. Provide Work under unit price method per Proposal and the following:
   1. Measure pipe for sanitary sewer and service by length in linear feet (LF) of each size, type, kind, and strength class along longitudinal centerline of pipe. Work shall include the following:
      a. Measure from pipe end at free outlets, point of connection with in-place pipe, center of manholes, point of centerline intersections at branch fittings, or point of juncture with other appurtenances or units as defined.
      b. Items incidental to pipe include, but are not limited to, trenching and backfilling, gaskets, and field quality control testing.
   2. Measure pipe fittings (wyes, tees, bends, caps, etc.) by number per each (EA) of each size, and type, and excluding any such fittings required to be installed as a component part of any other Work Unit.
   3. Measure structures (manholes, cleanouts, etc.) per each (EA) and categorized by inner barrel diameter and structure depth grouped into 2' increments. Work shall include the following:
      a. Measure from outlet pipe invert to top of casting.
      b. Items incidental to structures include, but are not limited to, trenching and backfilling, foundation pad, precast concrete base and structure sections, gaskets, steps, adjusting rings, ring seals, accessories, and formed and sealed invert and pipe penetrations.
   4. Measure casting assemblies by number per each (EA) of each size and type.
      a. Items incidental to casting assemblies include, but are not limited to, external ring seals where required and installation on the manhole structure.
   5. Measure connection of proposed pipe to existing pipe or structure by number per each (EA) of each type of connection without regard for pipe size or type. Work shall include the following:
      a. Items incidental to connection of proposed pipe to existing pipe or structure include, but are not limited to, accessories, pipe boots, and coring of existing structures.
      b. Pipe Couplings utilized in pipe-pipe connections will be measured and paid per each for each size of pipe coupling.
   6. Measure structure adjustment by number per each (EA) of each type.
      a. Items incidental to structure adjustment includes, but is not limited to, removal of existing castings, adjusting rings, and structure sections as necessary, providing proposed replacement castings, adjusting rings, and structure sections as necessary, and adjustment to finished grade as specified.
      b. A minimum of 2 inches and a maximum of 14 inches of adjusting rings shall be used. If applicable, the Contractor shall confirm the adjusting rings have an adequate inner diameter to accommodate the proposed floating castings.
   7. Measure Reconstruct Manhole per each.
      a. Manhole reconstruction is necessary when the addition or removal of adjustment rings will not sufficiently bring the casting to the finished grade.
      b. Items incidental to manhole reconstruct include, but are not limited to, removal and replacement of manhole cone section, barrel sections, adjusting rings, gaskets, frame seals, excavation and backfills.
      c. A minimum of 2 inches and a maximum of 14 inches of adjusting rings shall be used. If applicable, the Contractor shall confirm the adjusting rings have an adequate inner diameter to accommodate the proposed floating castings.
   8. Measure temporary Manhole Covers per each.
      a. Temporary manhole covers shall be utilized on all manholes and junction boxes following the installation of the manhole strucure to the setting of the proposed

permanent casting. Item will be paid once per structure, regardless of removal and replacement due to construction operations.

9. Measure Manhole Exfiltration/Vacuum Tests per each.
    a. Manholes shall be tested in accordance with the City of Hartford, SD, Standard Specifications for Sanitary Sewer Construction. Payment will only be made for the passing test. All costs associated with a failed test will be the sole responsibility of the Contractor.
10. Measure PVC Pipe Deflection Test per lineal foot.
    a. PVC Pipe Deflection shall be tested in accordance with the City of Hartford, SD, Standard Specifications for Sanitary Sewer Construction. Payment will only be made for the passing test. All costs associated with a failed test will be the sole responsibility of the Contractor.
11. Measure Pipe Exfiltration Test per lineal foot.
    a. Pipe Exfiltration shall be tested in accordance with the City of Hartford, SD, Standard Specifications for Sanitary Sewer Construction. Payment will only be made for the passing test. All costs associated with a failed test will be the sole responsibility of the Contractor.
12. Measure granular pipe foundation per lineal feet (FT) per size of pipe and in accordance with Section 31 2317 - Trenching

B. Furnishing and installing of specific items and/or performance of Work under certain circumstances shall not be individually paid. Costs shall be included in unit price bid for associated sanitary sewer utility items. Such items of Work include, but are not limited to:
1. Interference of other underground structures and utilities.
2. Removal and restoration or protection of existing utilities which are indicated on Drawings and for which there is no bid item for removing and restoring or working around utility.
3. Protecting existing improvements from damage.
4. Unless separately itemized in Proposal, any dewatering necessary for sanitary sewer construction.
5. Foundation materials placed in lieu of performing necessary dewatering.
6. Unless separately itemized in Proposal, locating and connecting to existing sanitary sewer manhole, or lateral stub.
7. Furnishing and installing bends and adapters, and cutting and removing existing sanitary sewer pipe.
8. Furnishing and installing watertight plugs for stubbed sanitary sewer lines.
9. Unless separately itemized in Proposal, maintenance of service or bypass pumping during construction.
10. Protecting inverts of other utility pipes from accumulation of debris and soil, removal of blockages which threatens to damage property, and/or cleaning of both newly constructed lines and existing lines of all debris and soil which accumulate during Work.
11. Delays due to other utility conflicts which result during the course of construction.
12. Field testing of sanitary sewer and structures.

1.03 REFERENCE STANDARDS

A. SDDOT Specification 671 - Manholes; 2015.

B. City of Hartford Standard Specifications Section 100 - Sanitary Sewer Construction; current edition.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Obtain required permits for Work.

1.05 SUBMITTALS

A. Manufacturer's Certification: Certificate of compliance for all materials, supplies, and equipment provided.

B. Product Data: Provide manufacturer's data on pipe, fittings, and accessories.

C. Shop Drawings: Indicate structure locations, elevations, pipe sizes, and location and elevations of penetrations.

D. Record Documents: Include location of piping, connections, manholes, cleanouts, and invert elevations. Identify and describe unexpected variations to subsoil conditions or discovery of

uncharted utilities.

1.06 QUALITY ASSURANCE

A. Manufacturer: Company certified in manufacturing precast concrete products meeting SDDOT specifications.

B. Manufacturer: Company specializing in manufacturing products specified in this section with minimum 3-years documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store fittings and appurtenances in shipping containers with labeling in place.

B. Store pipe on a clean and stable surface. Ensure that pipe remains free of material and debris.

C. Store and handle pipe and appurtenances as recommended by manufacturer to prevent scratching, cutting, or gouging.

PART 2 PRODUCTS

2.01 AGGREGATE FOUNDATION, BEDDING, ENCASEMENT, AND BACKFILL

A. As specified in Section 31 2317 - Trenching.

2.02 SANITARY SEWER PIPE AND FITTINGS

A. General:
   1. Virgin material that is homogeneous throughout, and free of visible cracks, holes, foreign material, blisters, and other deleterious faults.
   2. Discard and remove from Site any pipe with defects greater than 10% of wall thickness, concentrated ridges, discoloration, excessive spot roughness, pitting, variable wall thickness, or other defects of manufacturing or handling.
   3. Provide pipe and fittings of each material type from same manufacturer.
   4. Comply with the City of Hartford, SD, Standard Specifications for Sanitary Sewer Construction.

B. Polyvinyl Chloride (PVC) Pipe and Fittings:
   1. Design and Thickness: (for maximum cover of 21-ft.)
      a. Service pipe sizes 4-in. and 6-in.: ASTM D3034 SDR-26
      b. Pipe sizes 8-in. to 15-in.: ASTM D3034 SDR-26
   2. Material: ASTM D1784c cell classification 12454
   3. Joints: ASTM D3212, Watertight bell and spigot.
   4. Gaskets: ASTM F477
   5. Markings on Pipe:
      a. Name of manufacturer
      b. Size and class
   6. Fittings: Same material as pipe with heavy duty thickness rating, and molded or formed to suit pipe size and end design in required tees, bends, elbows, cleanouts, reducers, traps and other configurations required.

2.03 MANHOLES AND APPURTENANCES

A. Precast Concrete Manhole Sections:
   1. Design: As shown on plans and meeting SDDOT 671 with AASHTO HS25 truck load rating and ASTM C478 "Precast Reinforced Concrete Manhole Sections" and all related ASTM Specifications.
   2. Reinforced polypropylene plastic steps shall be furnished for all sanitary sewer manholes.

B. Castings:
   1. Design: SDDOT 671 and on SDDOT approved products list.
   2. Manhole Cover: Solid lid with two concealed lift holes, machined bearing surfaces, rubber O-ring gasket, no lug, and 2-in. raised letters stamped "SANITARY SEWER" unless otherwise indicate on Drawings.

C. Adjusting Rings:
   1. HDPE: As manufactured by Ladtech, Inc., 6704 Meadowlark Crt., Lino Lakes, MN 55038, or approved equal.

D. External Ring Seal:

1. External rubber sleeve ring seal as indicated on Drawings.
2. Manufacturer:
    a. I&I Barrier by Strike Products
    b. Infi-Shield by Sealing Systems, Inc.
    c. Chimney Seal by Cretex Specialty Products.
    d. Approved equal.

E. Cast in Place Concrete:
1. Design: SDDOT 671

F. Mortar/Grout: SDDOT 671, 750 and 810 or 460.2 K.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify items provided by other sections of Work are properly sized and located.

B. Verify built-in items are in proper location, and ready for roughing into Work.

C. Verify manufactured items delivered to Site are undamaged, stored properly, and ready for Work.

D. Notify Architect of damaged items for determination of acceptance or rejection.

E. Promptly remove rejected materials from Site.

3.02 TRENCHING

A. See Section 31 2317 - Trenching for additional requirements.

B. Verify that trench cut is ready to receive Work and excavations, dimensions, and elevations are as indicated on Drawings.

C. Hand trim excavation for accurate placement of Work to elevations indicated.

D. Install and operate dewatering system to maintain all trenches free of water wherever necessary. Assume responsibility for any damage to adjacent structures or buildings caused by dewatering operations. Make own subsurface investigations and determine what dewatering methods to utilize to prevent such damage.

3.03 MAINTENANCE OF SERVICE

A. Maintain sanitary sewer service during Work, and provide equipment to bypass and control sanitary sewer flow around Work, if necessary.

B. In event of interruption to sanitary sewer service, Contractor is sole party responsible to notify affected parties.

C. Failure to maintain service could result in direct damage claims as well as consequential damage claims against Contractor.

3.04 CONSTRUCTION

A. Protect existing inverts during Work and clean if debris enters sewer.

B. Expose and verify location and elevation of existing sewer prior to laying any pipe to or from connection point when connection to existing or proposed sanitary sewer or structure is made. If location or elevation of existing sewer does not match location or elevation indicated on Drawings, notify Architect immediately, at which time Architect may adjust proposed alignment or grades. Allow reasonable amount of time for Architect to make assessment of conditions and determine alternate means of construction if necessary. As a minimum, Architect shall be allowed one Working Day from time of notification to make assessment and determination of alternate Work without submittal of Change Proposal for adjustment in Contract Price or Contract Times.

C. Provide suitable adapter of either insert coupling type or banded coupling type for connection of dissimilar materials or for repair of similar material. Adaper and band material shall meet requirements of either ASTM D3212 and ASTM F477, or ASTM C1173, and bear manufacturer's identifying mark and size.

D. If an existing utility is indicated on Drawings and no bid item for removing and restoring, or working around utility is provided for Work, remove and restore, or protect utility incidental to Project.

E. Handle all materials carefully to prevent damage to protective coatings and linings, preclude contamination of interior areas, and avoid jolting contact, dropping, or dumping.

F. Repair/connect existing tile and storm sewer when encountered as directed by Architect.

3.05 CONSTRUCTION - PIPE, FITTINGS, AND APPURTENANCES:

A. Provide pipe, fittings, and appurtenances of size, type, and at location indicated on Drawings.

B. Install per manufacturers' instructions and the following:
   1. Plastic Pipe and Fittings: ASTM D2321.

C. All underground piping installed through proposed building areas or occupied by existing buildings shall comply with all appropriate provisions of State of South Dakota Plumbing Code.

D. Proceed with trench excavation and bedding preparations ahead of pipe placement as will permit proper laying and joining of units at prescribed grade and alignment without unnecessary deviation or hindrance.

E. Excavate trench for all pipe 6-in. below pipe barrel to permit installation of granular bedding or foundation material.

F. Bed pipe under ordinary trench conditions in compacted granular bedding from 6-in. below bottom of pipe to spring line of pipe.

G. Where trench foundation has been found to be unstable and not suitable for bedding by Architect, install compacted foundation material from minimum of 6-in. below pipe up to bottom of pipe, and place remaining required bedding material over foundation. If 6-in. of foundation material proves insufficient, request use of additional foundation material from Architect. No additional foundation material shall be used without prior approval of Architect.

H. Remove foreign matter or dirt from inside of pipe and fittings before lowering into position in trench and keep clean throughout installation.

I. Lower pipe into laying position with suitable restraining devices. Under no circumstances shall pipe be dropped into trench.

J. Prior to laying pipe, while suspended for lowering into trench, inspect pipe and appurtenances to detect damage or unsound conditions that may be cause for corrective action or rejection; notify Architect of any defects.

K. Immediately prior to laying pipe, inspect joint surfaces of pipe and fittings for presence of foreign matter, coating blisters, rough edges or projections, and correct by cleaning, trimming or repair as necessary.

L. Lay pipe with bell or grooved end upgrade starting from downstream end of installation unless otherwise allowed by Architect.

M. Mark spigot end of pipe as necessary to indicate point of complete closure. As each length of bell and spigot pipe is placed in laying position, center spigot end in bell and force "home" bringing pipe to correct line and grade.

N. Lay pipe to line and grade indicated on Drawings, with maximum variation from true grade of 1/8-in. in 10-ft.

O. Secure pipe in place in compacted granular encasement from spring line of pipe to 12-in. above top of pipe.

P. Connect pipe to existing lines or manholes as indicated on Drawings, or as otherwise approved by Architect.

Q. Comply with pipe manufacturer recommendations where deflection of joints is necessary to make satisfactory closure or produce required curvature, grade, or alignment, and shall not exceed that which will assure watertight joints.

R. Bulkheading Open Pipe Ends:
   1. Provide and maintain temporary plug or cap for all pipe and fitting ends to be left open for future connection.
      a. Install prefabricated plug or cap for pipe sizes of 24-in. or less made of same material as pipe, or approved alternate material, to make watertight seal as required for pipe joints.

b. Install plug or cap for pipe sizes greater than 24-in. constructed with 2-in. timber planking securely fastened together.
c. Adequately block plug or cap in place to prevent flooding of existing downstream sewer system. Place plug or cap at beginning of Project or at end of each working day.

2. Provide permanent watertight plug on open end of pipe when flows are diverted from existing sewer to be abandoned in place.
   a. Construct permanent watertight plugs with mortar/grout with thickness of not less than 1 pipe diameter.

S. Sewer and Water Separation:
1. Provide 18-in. minimum separation measured vertically between gravity sewer and water pipes with preference that water crossing above gravity sewer when possible.
   a. Center length of water pipe at point of crossing, so that joints are equidistant and as far as possible from sewer.
   b. Adequately support sewer and water pipe crossing to prevent settling and deflection of joints.
   c. When conditions prevent vertical separation described, provide gravity sewer constructed to equivalent watermain standards for 10-ft. on either side of crossing, and pressure tested to assure water tightness prior to backfilling.
2. Provide 10-ft. minimum separation measured horizontally between gravity sewer and water pipes.
   a. When conditions prevent horizontal separation described, provide one of the following:
      1) Place bottom of water pipe 18-in. minimum above top of gravity sewer on undisturbed shelf; or
      2) Provide gravity sewer constructed to equivalent watermain standards and pressure tested to assure water tightness prior to backfilling.
3. Provide 10-ft. minimum separation measured horizontally between sewer and water service pipes.
   a. When conditions prevent horizontal separation described, place bottom of water service pipe 12-in. minimum above top of sewer service on undisturbed shelf

T. Sanitary Sewer Service Lateral Installation:
1. Keep accurate records as to location of lateral connections constructed. Measurements to service line shall be taken from two nearest permanent structures (i.e. hydrants, valves, manholes, buildings) as directed by Architect. Final payment for Project will not be made until location information is provided to Owner.

3.06 CONSTRUCTION - MANHOLE STRUCTURES

A. Coordinate manhole structure construction with other sections of Work to provide correct size, shape, and location of structures as indicated on Drawings

B. Form bottom of trench excavation clean and smooth to correct elevation.

C. Establish elevations of pipe inverts for inlets and outlet as indicated on Drawings.

D. Provide minimum of 6-in. thick compacted rock foundation under all structures.

E. Provide precast base with smooth formed invert integrally cast with bottom barrel section level and to elevation necessary for subsequent Work.

F. Provide precast barrel and cone sections with tongue and grove joints, and placed plumb and level to correct elevations. Join with appropriate gasket to provide watertight seal.

G. Provide steps oriented over outlet pipe for all manholes.

H. Provide integrally cast water stop collars for all pipe openings.

I. Provide minimum of 3 and maximum of 6 standard 2-in. adjusting rings centered on structure opening.
1. Set concrete adjusting rings in full mortar bed, and wrapped in geotextile fabric.
2. Set HDPE adjusting rings per manufacturers recommendations.

J. Provide casting assembly centered on structure opening, level without tipping, and adjusted such that top is 1/2-in. lower than adjacent surface without use of wedges or shims. Set in full mortar bed to provide uniform bearing surface when using concrete adjusting rings. Set per

manufacturers recommendations when using HDPE adjusting rings.

K. Provide external ring seal per manufacturers recommendations.

L. Existing structure adjustment:
   1. Remove existing structure sections, adjusting rings, and casting assembly as necessary.
   2. Provide replacement structure sections as necessary for adjustment.
   3. Provide replacement adjusting rings as specified above.
   4. Replace existing casting or provide replacement casting as identified on Drawings.
      a. Up to one casting insert installed per manufacturer's recommendations is allowable for adjustment.

3.07 FIELD QUALITY CONTROL

A. Coordinate field quality control testing per the following:
   1. Notify Architect at least 24-hr. in advance of any testing.
   2. Provide competent and knowledgeable individual to perform testing.
   3. Perform testing under Architect's supervision for acceptance.
   4. Leakage Testing:
      a. Provide all necessary equipment and materials required for testing.
      b. Perform leakage testing of all gravity sanitary sewer pipe and service laterals following completion of sanitary sewer Work, but prior to surface restoration Work.
      c. Leakage testing shall be completed by air test or hydrostatic testing method, at Contractor’s discretion.
   5. Deflection Testing on Plastic Pipe:
      a. Provide all necessary equipment and materials required for testing.
      b. Perform deflection test after trench backfill to desired grade has been in place for minimum of 30-days.
      c. Perform test by pulling rigid ball or nine-point mandrel through pipe without aid of mechanical pulling devices. Ball or mandrel shall have minimum diameter equal to 95% of actual inside diameter of pipe. Maximum allowable deflection shall not exceed 5% of pipe's internal diameter. Line is considered acceptable if ball or mandrel can progress through line without binding.
      d. Time of test, method of testing, and equipment used for test shall be subject to approval of Architect.
   6. Televising:
      a. Perform televising of all installed sewer main unless otherwise approved by Architect.
      b. Flush sewer line imeadiately prior to televising.
      c. Contractor specializing in televising shall perform Work.
      d. Perform televising using crawler type in-pipe color camera at moderate to slow pace with sufficient lighting to inspect interior of pipe.
      e. Perform service televising using lateral-launch or crawler type in-pipe color camera at moderate to slow pace with sufficient lighting to inspect interior of pipe.
      f. Provide DVD video of televising in duplicate to Architect along with written report. Video shall contain the following:
         1) Indicate segment start and end locations by manhole number or other distinguishable feature from center of structure.
         2) Indicate segment pipe size.
         3) Indicate running footage along sewer line zeroed out at beginning of each segment.
         4) Indicate footage location of all service wyes and fittings, and rotate camera to view up intersecting sewer line.
         5) Indicate unusual conditions and provide more detailed and longer viewing of specific instance (i.e. - bad joint, material in line, settlement of line, etc.)
      g. Reflush and retelevise any location found to not be clean.
   7. Trench Compaction Testing:
      a. Perform per Section 31 2317 - Trenching.

B. Coordinate and pay to re-test sanitary sewer work following corrective action when test results indicate specified test results were not obtained.

3.08 PROTECTION

A. Protect pipe and bedding cover from damage or displacement until backfilling operation is in progress.

END OF SECTION

SECTION 33 4112
STORM SEWER

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Work to provide all labor, materials, tools, and equipment necessary or incidental to storm sewer and subdrain pipe and structure Work as indicated in Contract Documents .

1.02 REFERENCE STANDARDS

A. SDDOT Specification Section 671 - Manholes; 2015.

B. SDDOT Specification Section 450 - Pipe Culverts; 2015.

C. SDDOT Specification Section 680 - Underdrains; 2015.

D. City of Hartford Standard Specifications Section 200 - Storm Drainage Construction; current edition.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Obtain required permits for Work.

1.04 SUBMITTALS

A. Manufacturer's Certification: Certificate of compliance for all materials, supplies, and equipment provided.

B. Manufacturer's Installation Instructions: Indicate special procedures required to install Products specified.

C. Product Data: Provide manufacturer's data on pipe and accessories.

D. Shop Drawings: Indicate structure locations, elevations, pipe sizes, and location and elevations of penetrations.

E. Record Documents: Include location of piping, connections, structures, cleanouts, and invert elevations. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.05 QUALITY ASSURANCE

A. Manufacturer: Company certified in manufacturing precast concrete products meeting SDDOT specifications.

B. Manufacturer: Company specializing in manufacturing products specified in this section with minimum 3-yr. documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store fittings and appurtenances in shipping containers with labeling in place.

B. Store pipe on a clean and stable surface. Ensure that pipe remains free of material and debris.

C. Store and handle pipe and appurtenances as recommended by manufacturer to prevent scratching, cutting, or gouging.

1.07 SITE CONDITIONS

A. Cold and Hot Weather Requirements for Masonry Structure Construction: Comply with requirements of ACI 530.1/ASCE 6/TMS 602 or applicable building code, whichever is more stringent.
   1. Maintain materials and surrounding air temperature to minimum 50° F prior to, during, and 48-hr. after completion of masonry work.

PART 2 PRODUCTS

2.01 AGGREGATE FOUNDATION, BEDDING, ENCASEMENT, AND BACKFILL

A. As specified in Section 31 2317 - Trenching.

2.02 GENERAL:

A. Unless specifically indicated on Drawings or within Proposal, choose from pipe materials listed for each pipe type per these specifications.

B. Virgin material that is homogeneous throughout, and free of visible cracks, holes, foreign material, blisters, and other deleterious faults.

C. Discard and remove from Site any pipe with defects greater than 10% of wall thickness, concentrated ridges, discoloration, excessive spot roughness, pitting, variable wall thickness, or other defects of manufacturing or handling.

D. Provide pipe and fittings of each material type from same manufacturer.

2.03 STORM SEWER AND CULVERT PIPE, AND FITTINGS

A. Reinforced Concrete (RC) Pipe and Aprons:
   1. Design: SDDOT 450 and Standard Plate 450.01 and 450.10
   2. Class: (Minimum unless otherwise indicated on Drawings)
      a. For pipe sizes 15-in. and less: Class V
      b. For pipe sizes 18-in. and greater: Class III
   3. Joints and Gaskets: Gasketed bell and spigot or groove and tongue ends per SDDOT 450.
   4. Aprons/Flared Ends:
      a. SDDOT Standard Plate 450.10
      b. Trash Guards:
         1) Manufactured by Cretex Concrete Products standards, or approved equal
         2) Hot dipped galvanized steel
   5. Safety Aprons: SDDOT Construction Specifications
   6. Ties: SDDOT Standard Plate 450.18

2.04 SUBDRAIN PIPE AND APPURTENANCES

A. Corrugated Polyethylene Drainage Tubing that meets requirements as seth forth in SDDOT Standard Specifications Section 680.

B. Perforated Corrugated High Density Polyethylene (HDPE) Pipe and Fittings:
   1. Design:
      a. For pipe sizes 10-in. and less: AASHTO M252
      b. For pipe sizes 12-in. to 60-in.: ASTM F2306 and AASHTO M294
   2. Material: ASTM D3350
   3. Type SP: Dual-wall with smooth interior and corrugated exterior.
   4. Joints: Manufacturer's standard soil tight, band and snap on type.
   5. Gaskets: ASTM F477
   6. Markings on Pipe:
      a. Name of manufacturer
      b. Size and class
      c. Spigot insertion depth gauge
   7. Fittings: Same material as pipe molded or formed to suit pipe size and end design in required tees, bends, elbows, cleanouts, reducers, traps and other configurations required.

C. Service lateral pipe shall be unperforated solid wall pipe.

2.05 DRAINAGE STRUCTURES AND APPURTENANCES

A. Precast Concrete Manhole and Catch Basin Structures:
   1. Design: SDDOT 671 with AASHTO HS25 truck load rating.
   2. Type: SDDOT Standard Manhole and Catch Basin Design as indicated on Drawings
   3. Manhole and Circular Catch Basin Joints: Tongue and groove with rubber "O" ring or profile gasket.
   4. Steps: Steel reinforced plastic steps.
   5. Lift Holes: Holes to facilitate installation of structures shall not fully penetrate structure wall.
   6. Manufacture structures with holes or core with appropriate coring tool for subdrain connections as indicated on Drawings. Jack hammering of holes in the field will not be permitted.

B. Casting Ring and Cover:
   1. Design: SDDOT 671.01 and on SDDOT approved products list.

2. Type: As indicated on Drawings.
3. Manhole Cover: Solid lid with two open lift holes, and 2-in. raised letters stamped "STORM SEWER" unless otherwise indicate on Drawings.

C. Adjusting Rings:
1. HDPE: As manufactured by Ladtech, Inc., 6704 Meadowlark Crt., Lino Lakes, MN 55038, or approved equal.

D. Cast in Place Concrete:
1. Design: SDDOT 671

E. Subdrain Cleanouts:
1. Design: ASTM D3034 SDR-26
2. Gasket: ASTM F477
3. Cleanout Cover: Sioux Falls Detail 950.15 and on SDDOT approved products list
4. Markings on pipe
   a. Name of Manufacturer
   b. Size and class
   c. spigot insertion depth gauge
5. Fittings: Same material as pipe with heavy duty thickness rating, and molded or formed to suit pipe size and end design in required tees, bends, elbows, cleanouts, reducers, traps and other configurations required.

F. Mortar/Grout: Comply with SDDOT standards

G. Concrete Brick Units: ASTM C90, solid, normal weight.

H. Geotextile Fabric: SDDOT 831, Drainage Fabric Type A.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify items provided by other sections of Work are properly sized and located.

B. Verify built-in items are in proper location, and ready for roughing into Work.

C. Verify manufactured items delivered to Site are undamaged, stored properly, and ready for Work.

D. Notify Architect of damaged items for determination of acceptance or rejection.

E. Promptly remove rejected materials from Site.

3.02 TRENCHING

A. See Section 31 2317 - Trenching

B. Verify that trench cut is ready to receive Work and excavations, dimensions, and elevations are as indicated on Drawings.

C. Hand trim excavation for accurate placement of Work to elevations indicated.

D. Install and operate dewatering system to maintain all trenches free of water wherever necessary. Assume responsibility for any damage to adjacent structures or buildings caused by dewatering operations. Make own subsurface investigations and determine what dewatering methods to utilize to prevent such damage.

3.03 MAINTENANCE OF SERVICE

A. Maintain storm sewer service during Work, and provide equipment to bypass and control storm sewer flow around Work, if necessary.

B. In event of interruption to storm sewer service, Contractor is sole party responsible to notify affected parties.

C. Failure to maintain service could result in direct damage claims as well as consequential damage claims against Contractor.

3.04 CONSTRUCTION

A. Protect existing inverts during Work and clean if debris enters sewer.

B. Expose and verify location and elevation of existing sewer prior to laying any pipe to or from connection point when connection to existing or proposed sewer or structure is made. If

location or elevation of existing sewer does not match location or elevation indicated on Drawings, notify Architect immediately, at which time Architect may adjust proposed alignment or grades. Allow reasonable amount of time for Architect to make assessment of conditions and determine alternate means of construction if necessary. As a minimum, Architect shall be allowed one Working Day from time of notification to make assessment and determination of alternate Work without submittal of Change Proposal for adjustment in Contract Price or Contract Times.

C. If an existing utility is indicated on Drawings and no bid item for removing and restoring, or working around utility is provided for Work, remove and restore, or protect utility incidental to Project.

D. Handle all materials carefully to prevent damage to protective coatings and linings, preclude contamination of interior areas, and avoid jolting contact, dropping, or dumping.

E. Repair/connect existing tile and storm sewer when encountered as directed by Architect.

3.05 CONSTRUCTION - PIPE, FITTINGS, AND APPURTENANCES:

A. Provide pipe, fittings, and appurtenances of size, type, and at location indicated on Drawings.

B. Install per manufacturers' instructions and the following:
   1. RC Pipe: SDDOT 450.3 F.2 Class B Bedding.
   2. Plastic Pipe and Fittings: ASTM D2321.

C. All underground piping installed through proposed building areas or occupied by existing buildings shall comply with all appropriate provisions of State of South Dakota Plumbing Code; 2015, and South Dakota Rules.

D. Proceed with trench excavation and bedding preparations ahead of pipe placement as will permit proper laying and joining of units at prescribed grade and alignment without unnecessary deviation or hindrance.

E. Excavate trench for all pipe 6-in. below pipe barrel to permit installation of granular bedding or foundation material.

F. Bed pipe under ordinary trench conditions in compacted granular bedding from 6-in. below bottom of pipe to spring line of pipe.

G. Where trench foundation has been found to be unstable and not suitable for bedding by Architect, install compacted foundation material from minimum of 6-in. below pipe up to bottom of pipe, and place remaining required bedding material over foundation. If 6-in. of foundation material proves insufficient, request use of additional foundation material from Architect. No additional foundation material shall be used without prior approval of Architect.

H. Remove foreign matter or dirt from inside of pipe and fittings before lowering into position in trench and keep clean throughout installation.

I. Lower pipe into laying position with suitable restraining devices. Under no circumstances shall pipe be dropped into trench.

J. Prior to laying pipe, while suspended for lowering into trench, inspect pipe and appurtenances to detect damage or unsound conditions that may be cause for corrective action or rejection; notify Architect of any defects.

K. Immediately prior to laying pipe, inspect joint surfaces of pipe and fittings for presence of foreign matter, coating blisters, rough edges or projections, and correct by cleaning, trimming or repair as necessary.

L. Lay pipe with bell or grooved end upgrade starting from downstream end of installation unless otherwise allowed by Architect.

M. Mark spigot end of pipe as necessary to indicate point of complete closure. As each length of bell and spigot pipe is placed in laying position, center spigot end in bell and force "home" bringing pipe to correct line and grade.

N. Lay pipe to line and grade indicated on Drawings, with maximum variation from true grade of 1/8-in. in 10-ft.

O. Secure pipe in place with approved encasement material according to the following:
   1. Encase reinforced concrete pipe with compacted backfill material from spring line of pipe to 6-in. above top of pipe.

P. Connect pipe to existing lines, manholes, or catch basins as indicated on Drawings, or as otherwise approved by Architect.

Q. Comply with pipe manufacturer recommendations where deflection of joints is necessary to make satisfactory closure or produce required curvature, grade, or alignment, and shall not exceed that which will assure watertight joints.

R. Bulkheading Open Pipe Ends:
   1. Provide and maintain temporary plug or cap for all pipe and fitting ends to be left open for future connection.
      a. Install prefabricated plug or cap for pipe sizes of 24-in. or less made of same material as pipe, or approved alternate material, to make watertight seal as required for pipe joints.
      b. Install plug or cap for pipe sizes greater than 24-in. constructed with 2-in. timber planking securely fastened together.
      c. Adequately block plug or cap in place to prevent flooding of existing downstream sewer system. Place plug or cap at beginning of Project or at end of each working day.
   2. Provide permanent watertight plug on open end of pipe when flows are diverted from existing sewer to be abandoned in place.
      a. Construct permanent watertight plugs with mortar/grout with thickness of not less than 1 pipe diameter.

S. Sewer and Water Separation:
   1. Provide 18-in. minimum separation measured vertically between gravity sewer and water pipes with preference that water crossing above gravity sewer when possible.
      a. Center length of water pipe at point of crossing, so that joints are equidistant and as far as possible from sewer.
      b. Adequately support sewer and water pipe crossing to prevent settling and deflection of joints.
      c. When conditions prevent vertical separation described, provide gravity sewer constructed to equivalent watermain standards for 10-ft. on either side of crossing, and pressure tested to assure water tightness prior to backfilling.
   2. Provide 10-ft. minimum separation measured horizontally between gravity sewer and water pipes.
      a. When conditions prevent horizontal separation described, provide one of the following:
         1) Place bottom of water pipe 18-in. minimum above top of gravity sewer on undisturbed shelf; or
         2) Provide gravity sewer constructed to equivalent watermain standards and pressure tested to assure water tightness prior to backfilling.

T. Tie last three end section joints of reinforced concrete pipe inlets and outlets including apron and pipe as follows:
   1. Provide two tie bolt fasteners in each of last three joints, one on each side of top center at 60-degree point (from vertical).
   2. Tie bolt diameter shall be:
      a. 1/2-in. for 12-in. to 24-in. pipe.
      b. 5/8-in. for 27-in. to 36-in. pipe.
      c. 3/4-in. for 42-in. to 54-in. pipe.
      d. 1-in. for 60-in. and greater pipe.

3.06 CONSTRUCTION - SUBSOIL/SUBDRAIN PIPE

A. Comply with SDDOT 680 and applicable provisions of pipe construction above.

B. Bed and encase subsoil/subdrain pipe under ordinary trench conditions in compacted coarse filter aggregate from 6-in. below bottom of pipe to minimum of 12-in. above top of pipe. Refer to Drawings for additional encasement material requirements when applicable.

C. Connect subsoil/subdrain into structures or provide surface outlet as indicated on Drawings.

D. Locate cleanouts as indicated on Drawings, or directed by Architect.

3.07 CONSTRUCTION - MANHOLES, CATCH BASINS, AND OTHER DRAINAGE STRUCTURES

A. Coordinate manhole, catch basin, and other drainage structure construction with other sections of Work to provide correct size, shape, and location of structures as indicated on Drawings.

B. Form bottom of trench excavation clean and smooth to correct elevation.

C. Establish elevations of pipe inverts for inlets and outlet as indicated on Drawings.

D. Provide minimum of 6-in. thick compacted rock foundation under all structures.

E. Provide precast base slab level and to elevation necessary for subsequent Work.

F. Provide precast barrel and cone sections with tongue and grove joints, and placed plumb and level to correct elevations. Join with appropriate gasket to provide watertight seal.

G. Provide steps oriented over outlet pipe for all manholes, and circular catch basins 48-in. and greater in diameter and 48-in. and greater in depth.

H. Cut and fit structure sections as necessary for pipe.

I. Pour concrete, contour, and trowel smooth free flowing invert troughs in bottom of structure as necessary to achieve slope from inlet pipes to outlet pipe.

J. Provide watertight connection between structure sections and pipe with concrete brick and mortar/grout.

K. Provide minimum of 3 and maximum of 6 standard 2-in. adjusting rings centered on structure opening.
   1. Set concrete adjusting rings in full mortar bed, and wrapped in geotextile fabric.
   2. Set HDPE adjusting rings per manufacturers recommendations.

L. Provide casting assembly centered on structure opening, level without tipping, and adjusted such that top is 1/2-in. lower than adjacent surface without use of wedges or shims. Set in full mortar bed to provide uniform bearing surface when using concrete adjusting rings. Set per manufacturers recommendations when using HDPE adjusting rings.

M. Existing structure adjustment:
   1. Remove existing structure sections, adjusting rings, and casting assembly as necessary.
   2. Provide replacement structure sections as necessary for adjustment.
   3. Provide replacement adjusting rings as specified above.
   4. Replace existing casting or provide replacement casting as identified on Drawings.
      a. Up to one casting insert installed per manufacturer's recommendations is allowable for adjustment.

3.08 FIELD QUALITY CONTROL

A. Coordinate Field Quality Control tests:
   1. Notify Architect at least 24-hr. in advance of any testing.
   2. Provide competent and knowledgeable individual to perform testing.
   3. Perform testing under Architect's supervision for acceptance.
   4. Deflection Testing on Plastic Pipe:
      a. Provide all necessary equipment and materials required.
      b. Perform deflection test after trench backfill to desired grade has been in place for minimum of 30-days.
      c. Perform test by pulling rigid ball or nine-point mandrel through pipe without aid of mechanical pulling devices. Ball or mandrel shall have minimum diameter equal to 95% of actual inside diameter of pipe. Maximum allowable deflection shall not exceed 5% of pipe's internal diameter. Line is considered acceptable if ball or mandrel can progress through line without binding.
      d. Time of test, method of testing, and equipment used for test shall be subject to approval of Architect.
   5. Trench Compaction Testing per Section 31 2317 - Trenching.

B. Coordinate and pay to re-test Work following corrective work when test results indicate specified result was not obtained.

3.09 PROTECTION

A. Protect pipe and bedding cover from damage or displacement until backfilling operation is in progress.

END OF SECTION

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
STEEL BEAM GUARDRAIL
AASHTO M 180 DESIGNATION

OCTOBER 8, 2024

Section 630.2 B. – Page 427 – Delete and replace with the following:

B. Beam Guardrail:

For all projects let prior to January 1, 2027 the following shall apply:

Beam guardrail will conform to AASHTO M 180-18, Type I, or AASHTO M 180-23, Type I, unless the plans specify another type.

For all projects let January 1, 2027 and after the following shall apply:

Beam guardrail will conform to the most recent, at the time of the letting, version of AASHTO M 180, Type I, unless the plans specify another type.

Section 630.2 C. – Page 427 – Delete and replace with the following:

C. Bolts, Nuts, and Washers:

For all projects let prior to January 1, 2027 the following shall apply:

Bolts, nuts, and washers will be as specified in AASHTO M 180-18 or AASHTO M180-23.

For all projects let January 1, 2027 and after the following shall apply:

Bolts, nuts, and washers will be as specified in the most recent, at the time of the letting, version of AASHTO M 180.

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STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
ACKNOWLEDGEMENT AND CERTIFICATION REGARDING
ARTICLE 3, SECTION 12
OF THE SOUTH DAKOTA CONSTITUTION

AUGUST 24, 2023

In accordance with the State of South Dakota Office of the Governor Executive Order 2023-13, the following will apply to all contracts:

The Contractor acknowledges and certifies that the following information is correct:

CERTIFICATION OF NO STATE LEGISLATOR INTEREST:

Contractor (i) understands neither a state legislator nor a business in which a state legislator has an ownership interest may be directly or indirectly interested in any contract with the State that was authorized by any law passed during the term for which that legislator was elected, or within one year thereafter, and (ii) has read South Dakota Constitution Article 3, Section 12 and has had the opportunity to seek independent legal advice on the applicability of that provision to this contract. By signing this contract, Contractor hereby certifies that this contract is not made in violation of the South Dakota Constitution Article 3, Section 12.

It is understood and agreed that, if this certification is false, such false certification will constitute grounds for the Department to terminate the contract.

The Contractor further agrees to provide immediate written notice to the Department if during the term of the contract it no longer complies with this certification and agrees such noncompliance may be grounds for contract termination.

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STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
BUY AMERICA

MAY 1, 2024

Section 6.9 – Page 46 – Delete and replace with the following:

6.9 BUY AMERICA – Iron & steel, manufactured (composite) products, and construction materials must be produced in the United States in accordance with these Buy America requirements. Buy America preference applies to articles, materials, and supplies required to be consumed in, permanently incorporated into, or affixed to the completed project. Buy America preference does not apply to tools, equipment, and supplies such as temporary works and other temporary items brought to the project and removed at or before the final completion of the project. Temporary items are items that are not part of contract specifications, items that are not required in the design or final working drawings, and items that are removed or could be removed but allowed to remain in place if requested by the Contractor and approved by the Engineer.

A. Certification: The following category-based requirements will apply for each article, material, or supply.

1. **Iron & Steel:** A statement will be included on the certification stating whether the iron or steel is of domestic or foreign origin. The Department will consider iron & steel that does not require separate certification in accordance with the Department's Materials Manual as miscellaneous iron & steel. The Contractor will provide the Department a completed and signed Miscellaneous Materials Buy America Certificate stating the miscellaneous iron & steel required to be consumed in, permanently incorporated into, or affixed to the completed project complies with the Buy America requirements specified herein.

2. **Manufactured (Composite) Products:** Due to an existing nationwide waiver, manufactured (composite) products currently have no specific requirements.

3. **Construction Materials:** Construction materials and construction materials currently on the Department's Approved Products List will be treated as "Tier 1" items in accordance with the Required Samples, Tests, and Certificates (RSTC) section of the Department's Materials Manual. The

Contractor will provide the Department a completed and signed Miscellaneous Materials Buy America Certificate stating the construction materials required to be consumed in, permanently incorporated into, or affixed to the completed project complies with the Buy America requirements specified herein.

B. Determination of Material Category: The Department, in the Department's sole discretion, will classify an article, material, or supply into one of the following categories, (1) Iron & Steel, (2) Manufactured (Composite) Product, (3) Construction Material, or (4) Excluded Material. Articles, materials, and supplies will be considered to fall into only one single category of Buy America requirements. Some contract items are composed of multiple components that may fall into different categories. Individual components and composite items will be classified based on their nature when they arrive on the work site.

1. **Iron & Steel:** The Department will classify items wholly or predominantly composed of iron or steel or a combination of both as iron & steel.

   Predominantly of iron or steel or a combination of both means that the cost of the iron and steel content exceeds 50% of the total cost of all its components. The cost of iron and steel is the cost of the iron or steel mill products (such as bar, billet, slab, wire, plate, or sheet), castings, or forgings utilized in the manufacture of the product and a good faith estimate of the cost of iron or steel components.

2. **Manufactured (Composite) Products:** The Department will classify items not specifically classified as iron & steel, construction materials, or excluded materials which are fabricated, combined, or manufactured through a manufacturing process into a commercially available composite item as manufactured (composite) products. The Department will classify items consisting of 2 or more of the listed construction materials combined through a manufacturing process as a manufactured (composite) product. The Department will classify items consisting of 1 of the listed construction materials combined with a material not listed through a manufacturing process as a manufactured (composite) product.

3. **Construction Materials:** The Department will classify only the materials specifically listed as construction materials as construction materials.

   Minor additions of articles, materials, supplies, or binding agents to a construction material will not change the categorization of the construction material.

4. **Excluded Materials:** The Department will classify cement and cementitious materials; aggregates such as stone, sand, or gravel; and aggregate binding agents or additives as excluded materials.

C. Iron & Steel: Structural steel and other iron and steel products will be produced in the United States. To be considered produced in the United States, all manufacturing processes, from the initial melting stage through the application of coatings, must occur in the United States. The application of a coating is interpreted to mean all processes that protect or enhance the value of material or product to which it is applied; examples are epoxy coatings, galvanizing, and painting.

Buy America does not apply to iron ore, scrap, pig iron, and processed, pelletized, and reduced iron ore.

If iron ingots or steel billets produced in the United States are sent out of the country for a subsequent manufacturing process and then are brought back into the United States, the full value of the iron or steel as it reenters the country (including the original billet cost and any coatings) will be considered foreign.

If foreign iron or steel components are combined with other components into a fabricated or assembled manufactured (composite) product, the foreign iron or steel content of the manufactured (composite) product is not only the value of the foreign iron or steel components, but also the pro-rata value of the fabrication and assembly labor and overhead used in the combining the foreign iron or steel and other components into the finished manufactured (composite) product, including coatings.

D. Manufactured (Composite) Products: Iron and Steel components of manufactured (composite) products will comply with the Buy America requirements for iron & steel. Due to an existing nationwide waiver, manufactured (composite) products without iron and steel components currently have no specific requirements.

E. Construction Materials: Construction materials will be produced in the United States. Each construction material is followed by a standard for the material to be considered produced in the United States.

A construction material is an article, material, or supply that is one of the following:

1. Non-ferrous metals. All manufacturing processes, from initial smelting or melting through final shaping, coating, and assembly, occurred in the United States.

2. Plastic and polymer-based products including polyvinylchloride, composite building materials, and polymers used in fiber optic cables. All manufacturing processes, from initial combination of constituent plastic or

polymer-based inputs, or, where applicable, constituent composite materials, until the item is in its final form, occurred in the United States.

3. Glass including optic glass. All manufacturing processes, from initial batching and melting of raw materials through annealing, cooling, and cutting, occurred in the United States.

4. Fiber optic cable including drop cable. All manufacturing processes, from the initial ribboning (if applicable), through buffering, fiber stranding and jacketing, occurred in the United States. All manufacturing processes also include the standards for glass and optical fiber, but not for non-ferrous metals, plastic and polymer-based products, or any others.

5. Optical fiber. All manufacturing processes, from the initial preform fabrication stage through the completion of the draw, occurred in the United States.

6. Lumber. All manufacturing processes, from initial debarking through treatment and planing, occurred in the United States.

7. Engineered wood. All manufacturing processes from the initial combination of constituent materials until the wood product is in its final form, occurred in the United States.

8. Drywall. All manufacturing processes, from initial blending of mined or synthetic gypsum plaster and additives through cutting and drying of sandwiched panels, occurred in the United States.

F. Unavailability of Compliant Items: If the Contractor discovers a Buy America compliant item or items does not exist or an item becomes unavailable, the Contractor will immediately notify the Department. The Contractor will furnish written documentation of the Contractor's complete efforts to obtain a compliant item. This documentation will include a complete contact log with dates and times of the Contractor's efforts to obtain a compliant item, the responses received, and any correspondence between the Contractor and potential suppliers of the item which demonstrate efforts to obtain a compliant item. If, based on review of the documentation provided, the Department determines all potential options to obtain a compliant item have been exhausted; the Department will determine the appropriate course of action.

G. Non-Compliant Items: If the Engineer, in the Engineer's sole discretion, determines an article, material, or supply provided to the project does not comply with these Buy America requirements but is available; the following will apply:

1. If the non-compliant item is not permanently incorporated into the completed work, the Contractor will not permanently incorporate the item and will replace the non-compliant item with an item that complies with the Buy America requirements specified herein at the Contractor's expense.

2. If the non-compliant item has been permanently incorporated into the completed project; the Engineer, in the Engineer's sole discretion, will determine if the non-compliant item must be removed and replaced including any completed work at the Contractor's expense or if the non-compliant item may remain in place in accordance with both of the following requirements:

   a. Minor quantities of non-compliant iron & steel may be incorporated in the Department's sole discretion based on the Department's review of the Contractor's documented invoiced material costs, provided the invoiced material costs of all non-compliant iron & steel do not exceed 0.1% of the total contract amount or $2,500, whichever is greater.

   b. Minor quantities of non-compliant iron & steel and construction materials may be incorporated in the Department's sole discretion based on the Department's review of the Contractor's documented invoiced material costs, provided the total value of the non-compliant items does not exceed 5.0% of the total applicable costs for the project or $1,000,000, whichever is less.

   The total value of the non-compliant items will include non-compliant iron & steel and non-compliant construction materials. The total value of the non-compliant items will not include excluded materials, manufactured (composite) products, or other items within the scope of an existing Buy America waiver.

   The total value of an item includes the cost of the material plus the cost of transportation to the project site, as evidenced by delivery receipt, but does not include the labor costs to assemble and install at the project site.

   The total applicable project costs will be defined as the total value of materials used in the project that are subject to a domestic preference requirement, including the total value of any iron & steel, construction materials, manufactured (composite) products, and other items within the scope of an existing Buy America waiver. The total applicable project costs will not include excluded materials.

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STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
LIABILITY INSURANCE

APRIL 21, 2022

Section 7.15 – Page 50 – Delete and replace with the following:

7.15 LIABILITY INSURANCE - The Contractor will procure and maintain at the Contractor's expense, during duration of the contract, liability insurance with an insurance company authorized to do business in the state of South Dakota, for damages imposed by law. The insurance will cover all operations under the contract, whether performed by the Contractor or by subcontractors, and will name the State of South Dakota, the Department, and the Department's officers and employees as additional insureds, but liability coverage is limited to claims not barred by sovereign immunity. The State of South Dakota, the Department, and the Department's officers and employees do not hereby waive sovereign immunity for discretionary conduct as provided by law. Before commencing the work, the Contractor will furnish certificates of insurance, certifying that the policies will not be changed or cancelled until 30 calendar days' written notice has been given to the Department.

The certificates of insurance will provide evidence that the Contractor carries sufficient liability insurance to protect the public from injuries sustained by reason of pursuing the work, and that Workers' Compensation Insurance meets the requirements of the South Dakota Workers' Compensation Law.

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STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
RESPONSIBILITY FOR DAMAGE CLAIMS

APRIL 21, 2022

Section 7.14 – Page 50 – Delete and replace with the following:

7.14 RESPONSIBILITY FOR DAMAGE CLAIMS - The Contractor will indemnify the State of South Dakota, the Department, and the State's officers and employees, from all suits, actions, or claims of any character, including suits in which the State, Department, or the State's officers and employees are sued, brought because of any injuries or damages received or sustained by any person, persons, or property arising at least in part from the Contractor's operations; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any act or omission, neglect, or misconduct of said Contractor; or because of any claims or amounts recovered from any infringements of patent, trademark, or copyright; or from any claims or amounts arising or recovered under the "Workers' Compensation Act", or any other law, ordinance, order, or decree. The Contractor's obligation to indemnify will include the payment of reasonable attorney fees and other costs of defense. So much of the money due the Contractor under and by virtue of the contract as may be considered necessary by the Department for such purpose may be retained for the use of the State; or in case no money is due, the Contractor's surety may be held until such suit or suits, action or actions, claim or claims for injuries or damages as aforesaid will have been settled and suitable evidence to that effect furnished to the Department. Money due the Contractor will not be withheld when the Contractor produces satisfactory written confirmation from the Contractor's insurer that adequate public liability insurance and property damage insurance providing coverage for such particular claims as may be made is in force, and the Contractor provides evidence the claim has been submitted to the Contractor's insurer. A copy of a certificate of insurance, without further confirmation of coverage for the particular claim being made, will not be sufficient to satisfy the requirement of written confirmation.

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STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
RESTRICTION OF BOYCOTT OF ISRAEL

JANUARY 31, 2020

In accordance with the State of South Dakota Office of the Governor Executive Order 2020-01 the following will apply to all contracts unless the amount being bid is less than $100,000:

By submitting a bid proposal for this contract, the bidder certifies and agrees the following information is correct for the bidder and all subcontractors (all tiers) and suppliers with five (5) or more employees:

The bidder, in preparing the bid proposal or in considering proposals submitted from qualified potential suppliers and subcontractors, or in the solicitation, selection, or commercial treatment of any supplier or subcontractor; has not refused to transact business activities, has not terminated business activities, and has not taken other similar actions intended to limit its commercial relations, related to the subject matter of the bid proposal, with a person or entity on the basis of Israeli national origin, or residence or incorporation in Israel or its territories, with the specific intent to accomplish a boycott or divestment of Israel in a discriminatory manner. It is understood and agreed that, if this certification is false, such false certification will constitute grounds for the Department to reject the bid proposal submitted by the bidder on this contract and terminate any contract awarded based on the bid. The bidder agrees to provide immediate written notice to the Department if, during the term of the contract awarded to the bidder, the bidder no longer complies with this certification. The bidder further agrees such noncompliance may be grounds for contract termination.

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STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
CONTRACTOR ADMINISTERED PRECONSTRUCTION MEETING

DECEMBER 18, 2019

I. DESCRIPTION

This work consists of the Contractor scheduling and conducting a preconstruction meeting prior to beginning work on this contract. Additionally, this work consists of the Contractor providing the Area Engineer a completed list of required submittals.

II. MATERIALS (Not Specified)

III. CONSTRUCTION REQUIREMENTS

The Area Engineer will provide the Contractor the Authorization Form for Preconstruction Meeting (Form DOT-270) and the Contractor's Required Submittals Form (Form DOT-272) after the date of the Notice of Award and no later than 10 business days after the date of the Notice to Proceed.

The Contractor's authorized representative as indicated on the Signature Authorization Form (Form DOT-209) will complete, in its entirety, the first page of the Authorization Form for Preconstruction Meeting and will initial each proceeding section. By initialing each section, the Contractor is confirming comprehension of each section.

The Contractor's Required Submittals Form is a document outlining information required prior to the completion of the project. This list will include two types of submittals; 1) information required before scheduling a preconstruction meeting and 2) information required before the Contractor begins related work. The Department reserves the right to request additional information not included in the original list of required submittals. The list of required submittals will include, but is not limited to, proposed sequence changes, shop drawings, permits, certifications, mix designs, labor compliance, equal employment opportunity, and disadvantaged business enterprise documents. The Area Engineer will update the Contractor's Required Submittals Form with any project specific requirements and cross out or delete those that do not apply prior to providing the document to the Contractor.

Prior to scheduling the preconstruction meeting, the Contractor will complete and provide the Area Engineer all items on the list of required submittals that are

required as described in 1) above. If the Contractor cannot complete and provide a submittal item required prior to scheduling the preconstruction meeting, the Contractor will contact the Area Engineer to establish a mutually agreed upon date when the required submittal will be completed and provided to the Area office.

The Contractor will not begin work on an item until the Contractor has provided the Area Engineer with all required information for the applicable work item and the appropriate office has approved the information, if necessary. The Contractor will make every reasonable effort to deliver the required submittals at the earliest possible time.

When the Contractor has provided the Area Engineer all required submittals, except those mutually agreed upon to be provided at a later date or dates, the Contractor will schedule a preconstruction meeting with the Area Engineer.

Within 2 business days following the Contractor scheduling the preconstruction meeting, the Area Engineer will prepare and send the Contractor a meeting confirmation and the Preconstruction Meeting Outline (Form DOT-271).

The Area Engineer will edit and amend the Preconstruction Meeting Outline, as necessary, to meet the specific needs of the project. The Area Engineer will complete the project information and the Department information prior to furnishing the form to the Contractor.

The Contractor will complete the Contractor's portion of the Preconstruction Meeting Outline and will add additional discussion items as needed. The Contractor will send the meeting notice and final Preconstruction Meeting Outline to the Area Engineer, all subcontractors, utility companies, railroad companies (if applicable), and all suppliers at least 5 business days prior to the preconstruction meeting.

The Area Engineer will send the notice of the meeting and the final Preconstruction Meeting Outline of discussion items to any other government entities and other principle stakeholders involved in the project at least 3 business days prior to the preconstruction meeting.

At the discretion of the Area Engineer, the preconstruction meeting may be held in person, videoconference, or over the phone. The Contractor's competent superintendent who will be working on this project, as required by Section 5.5, or the Contractors Project Manager, as required by the Special Provision for Cooperation by Contractor and Department (if applicable), , is required to attend the preconstruction meeting.

The Contractor will lead the meeting discussion as described in the Preconstruction Meeting Outline. The Area Engineer will prepare the meeting minutes including any unresolved items and distribute the minutes to all attendees

and principle stakeholders within 5 business days following the preconstruction meeting.

IV. METHOD OF MEASUREMENT

The Department will not make a separate measurement for the preconstruction meeting.

V. BASIS OF PAYMENT

The Department will not make a separate payment for the preconstruction meeting. All costs associated with the preconstruction meeting will be incidental to other contract items.

* * * * *

DOT-208
(07/15)

FUEL ADJUSTMENT AFFIDAVIT

Project Number _____
PCN _____
County _____

For project let using the SDEBS) and in accordance with Section 9.12, the bidder is not required to notify the Department at the time of submitting bids whether the Contractor will or will not participate in the fuel cost adjustment program. Prior to execution of the contract, the successful bidder must submit this completed form to the Department for approval. The Fuel Adjustment Affidavit shall include the anticipated fuel cost of subcontractors.

Does your company elect to participate in a fuel adjustment for this contract for the fuels that do not have a fixed price? No adjustments in fuel prices will be made if "No" is checked.

☐ Yes ☐ No

If yes, provide the total dollars for each of the applicable fuels. No adjustments in fuel price will be made for the fuel types that are left blank or completed with a $0.00 value.

Diesel (x) $_____

Unleaded (y) $_____

Burner Fuel (z) $_____ Type of Burner Fuel Used: _____

Sum (x + y + z) = $_____

Note: The sum of the x, y, and z may not exceed 15% of the original contract amount.

The following must be completed regardless of whether the Contractor elects to participate in the fuel adjustment affidavit

Under the penalty of law for perjury or falsification, the undersigned, _____,
(Printed Name)

_____ of _____,
(Title) *(Contractor)*

hereby certifies that the documentation is submitted in good faith, that the information provided is accurate and complete to the best of their knowledge and belief, and that the monetary amount identified accurately reflects the cost for fuel, and that they are duly authorized to certify the above documentation on behalf of the company.

I hereby agree that the Department or its authorized representative shall have the right to examine and copy all Contractor records, documents, work sheets, bid sheets, and other data pertinent to the justification of the fuel costs shown above.

Dated _____ Signature _____

Notarization is required only when the Contractor elects to participate in the fuel adjustment affidavit

Subscribed and sworn before me this _____ day of _____ , 20___.

_____ _____
Notary Public *My Commission Expires*

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

STANDARD TITLE VI / NONDISCRIMINATION ASSURANCES APPENDIX A & E

MARCH 1, 2016

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations**: The contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, Federal Highway Administration, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

2. **Non-discrimination**: The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.

3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment**: In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.

4. **Information and Reports**: The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the Federal Highway Administration to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the Recipient or the Federal Highway Administration, as appropriate, and will set forth what efforts it has made to obtain the information.

5. **Sanctions for Noncompliance**: In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:

    a. withholding payments to the contractor under the contract until the contractor complies; and/or
    b. cancelling, terminating, or suspending a contract, in whole or in part.

6. **Incorporation of Provisions**: The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or

is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

Pertinent Non-Discrimination Authorities:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 et seq.), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 et seq.), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 et seq.), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures Non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of Limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq).

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STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
DISADVANTAGED BUSINESS ENTERPRISE

FEBRUARY 9, 2024

The Contractor, subrecipient, or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of Department-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the Department deems appropriate.

I. Definitions

A. Specified Goal: A DBE participation goal for a contract as indicated by a specific numerical percentage of the total dollar amount of the contract in the bidding documents.

B. Not Specified: No specific DBE participation goal is specified for a contract.

C. Disadvantaged Business Enterprise (DBE): A for-profit small business that is certified by the Department and is listed in the DBE Directory available on the Department's web site.

D. Good Faith Effort (GFE): Efforts to achieve a DBE goal which; by their scope, intensity, and appropriateness to the objective; can reasonably be expected to meet the objective of the Department's DBE program pursuant to 49 CFR 26.1.

E. Positive Contact: Communication between the bidder and the DBE in which the bidder receives an oral or written response from the DBE stating the DBE's intention to quote or not quote a project.

F. Commitment: The dollar amount of work to be subcontracted to DBEs, according to the bidder's bid. The commitment may be compared to the dollar amount of all contract items in the bidder's bid and expressed as a percentage of the total bid amount.

G. Reasonable Effort: For projects when goals are not specified, bidders are encouraged to solicit all certified DBEs listed in the appropriate work classifications in the DBE directory that have indicated in the directory they are

willing to work in the project's geographic area and also those that are listed on the plan holders list.

II. Bidding Requirements

A bidder must not discriminate on the basis of race, color, national origin, or sex in the solicitation or award to subcontractors and material suppliers. Bidders who demonstrate a pattern of possible discrimination through consistent and repeated under-utilization of DBEs may be subject to investigation and sanctions allowed by regulation, administrative rule, or law.

The Bidder's failure to carry out the requirements of this special provision will be treated as a non-responsive bid.

On contracts that specify a specific DBE contract participation goal, all bidders must include their DBE commitment for the contract in the bidding files provided by the Department.

If the contract indicates "Not Specified," all bidders are encouraged to include their anticipated DBE utilization for the contract in the bidding files provided by the Department.

Each bidder must submit a list of all subcontractors and suppliers (DBEs and non-DBEs) the bidder received quotes from for that contract with the bid files.

A Contractor must make reasonable efforts to provide opportunities for DBEs to participate on Federal-aid contracts throughout the life of the contract.

On contracts let with a specified DBE contract participation goal, where the low bidder has not met or exceeded that goal, upon request from the Department all bidders who did not meet or exceed the goal must provide GFE documentation as indicated in Section III of this special provision.

When the DBE participation is "Not Specified" on a contract, each bidder is encouraged to use DBE Contractors; however no bidder will be required to furnish GFE documentation.

Bidders must submit GFE documentation, when requested by the Department, within 2 business days from the date bidders are contacted by the Department. Section III of this special provision provides information on the types of action bidders should make as part of their GFE to obtain DBE participation. Bidders may submit documentation with the bidding files provided all pertinent information is included. Bidders must submit any missing documentation within 2 business days from the date the Department contacts the bidder. If the bidder fails to comply with this requirement, the Department will consider the bid proposal irregular and may reject the bid proposal.

If the apparent low bidder does not provide documentation showing GFE as required by this special provision, the Department will consider that bid nonresponsive and may either award the contract to the next lowest responsible bidder with a responsive bid, or reject all bids. Subsequent to the DBE committee's decision that the apparent low bidder's efforts do not establish GFE, the apparent low bidder will be notified that the bid is not responsive. The apparent low bidder will have 2 business days from the date of notification to contact the Bid Letting Engineer to arrange a meeting with the Department Secretary, or the Secretary's designee, to present documentation and argument about why the bid should not be rejected. The Department Secretary or the Secretary's designee will issue a written decision on responsiveness of the bid within 2 business days after the meeting.

If the apparent low bid is rejected for failure to meet the GFE or other requirements, the next apparent low bidder's GFE will be reviewed, unless all bids are rejected. Unless all bids are rejected, award of the contract will be made to the lowest bidder with a responsive bid.

The lowest responsive bidder on a project with a specified goal will be required to complete form DOT-289B, as included in the contract documents, when the contract is sent for signature. This form requires a signature from each DBE identified in the low bidder's DBE commitment. A separate form will be supplied for each DBE and will be included in the contract documents.

Bidders are encouraged to assist interested DBEs in obtaining bonding, lines of credit, insurance, necessary equipment, supplies, materials, or other related services.

III. Good Faith Efforts

If a GFE package is requested on a contract with a specified goal, the bidders must submit documentation showing compliance with the following requirements:

A. The bidders will submit a contact log of all solicitation efforts including:

- Name of the DBE firm
- Name and phone number of the individual with whom contact was made
- Date, time, and manner of each and every contact (by phone, in person, fax, mail, e-mail, etc.)
- The DBE's response to the solicitation
- Result of the solicitation effort

An example of a solicitation log is available on the Department's Bid Letting website. When bidding utilizing the South Dakota Department of Transportation Electronic Bid System (SDEBS), SDEBS may be used to document the log of solicitation efforts for the project.

B. The bidders will also submit documentation that shows GFE in relation to the following requirements:

1. The bidder must select contract work items to encourage DBE participation. This includes breaking out contract work items into economically feasible units to facilitate DBE participation, even when the bidder might otherwise prefer to perform these work items with its own forces.

2. The bidder must solicit all certified DBEs that are listed in the appropriate work classifications in the DBE directory and that have indicated in the directory they are willing to work in the project's geographic area. Without exception, all DBEs who are listed on the plan holders list by 10 AM central time 7 calendar days prior to the bid letting must be solicited in accordance with Section III.B.3 of this special provision. If the bidder has not solicited any DBE meeting these requirements, the bidder will provide a detailed written explanation showing why the DBE was not solicited.

3. To provide adequate time for the DBE to respond with a quote in the normal course of business, the bidder must make the initial solicitation at least 6 calendar days by mail or 5 calendar days by phone, fax, or e-mail prior to the letting date. Without exception, all DBEs who are listed on the plan holders list by 10 AM central time 7 calendar days prior to the bid letting must be solicited.

4. If the bidder does not receive a positive contact from a DBE, the bidder must follow up the initial solicitation with a second solicitation by phone, fax, or e-mail to determine whether the DBE is interested in quoting. The bidder must make this second solicitation at least 2 business days prior to the letting.

5. The bidder will provide interested DBEs with adequate and timely information about plans, specifications, and requirements of the contract to assist DBEs in responding to a solicitation.

6. If a bidder rejects a DBE quote because of previous problems with a particular DBE, the bidder must prepare a detailed written explanation of the problem. Additional cost involved in finding and using DBEs is not, in itself, sufficient reason for a bidder to reject a quote. A bidder must not reject a DBE as being unqualified without sound reasons based on a thorough investigation of the DBE's capabilities.

7. Any additional information requested by the Department.

C. The bidder must consider qualified DBEs whose quotes are reasonably competitive. If the bidder rejects any quote because it is considered not to be "reasonably competitive," the bidder must provide copies of all DBE and non-

DBE quotes, and a work item price spreadsheet comparing DBE quotes to non-DBE quotes. The spreadsheet must show which quote was included in the bid for the work items being compared. The ability or desire of a bidder to perform the work with its own forces does not relieve the bidder of the responsibility to make GFE. In the event a bidder elects to use its own forces over a DBE, the bidder must include, on the spreadsheet, documentation of the costs of using the bidder's own forces. This can be shown in a number of ways, which may include submitting portions of the bidder's work sheets used to prepare the bid.

D. The bidder must explain why the specified goal could not be met.

E. The bidder must identify any additional efforts the bidder made to secure DBE participation.

IV. Counting DBE Participation

On projects with a specified goal, the contract commitment, as submitted with the bid, will be documented on form DOT-289R/C as included in the contract documents.

If the project is shown as "Not Specified," the anticipated DBE utilization, as submitted with the bid, will be documented on form DOT-289 R/N – DBE Utilization Form, as included in the contract documents. The DBE utilization shown on this form is not a commitment to use the DBE. This information will be used by the Department to track anticipated DBE usage.

Only the portion of a contract performed by the DBE's own forces will count toward DBE participation. Included is the cost of supplies and materials obtained by the DBE for the contract, including supplies purchased or equipment leased by the DBE. Supplies and equipment the DBE subcontractor purchased or leased from the Contractor or its affiliate is not allowed to be included.

When a DBE performs as a participant in an approved joint venture, only the portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work of the contract that the DBE performs with its own forces will count toward DBE participation.

A bidder may count toward its DBE participation only that percentage of expenditures to DBEs that perform a commercially useful function (CUF) in the performance of a contract. A DBE performs a CUF when the DBE is responsible for execution of the work of a contract and is carrying out the DBE's responsibilities by actually performing, managing and supervising the work involved. To perform a CUF, the DBE must also be responsible, with respect to materials and supplies used on the contract, for negotiating prices, determining quality and quantity, ordering and installing (where applicable) the materials, and paying for the material itself. To determine whether a DBE is performing a CUF, the Department will

evaluate the amount of work subcontracted, the industry practice, and whether the amount the DBE is to be paid is commensurate with the work it is actually performing, DBE credit claimed for performance of the work, and other relevant factors.

A DBE is not performing a CUF if the DBE performs less than 30% of the total cost of its contract with its own work force, or if its role is limited to that of an extra participant in a transaction, project, or contract through which funds are passed in order to obtain the appearance of DBE participation. In determining whether a DBE is simply an extra participant, the Department will examine similar transactions, particularly those in which DBEs do not participate.

DBE participation will be counted for trucking services as follows:

The bidder/Contractor will receive credit toward DBE participation for the total value of the transportation services the DBE provides on the contract using trucks the DBE owns, insures, and operates and which are driven by drivers the DBE employs.

A DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. When a DBE leases trucks from another DBE, the bidder/Contractor can count the total value of the transportation services the lessee DBE provides on the contract toward DBE participation.

The DBE may also lease trucks from a non-DBE firm, including an owner-operator. When a DBE leases trucks from a non-DBE, the bidder/Contractor can count toward DBE participation only the fee or commission the DBE receives as a result of the lease arrangement. The bidder/Contractor does not receive credit toward DBE participation for the total value of the transportation services, since all services are not provided by a DBE.

The bidder may count toward DBE participation expenditures to DBE firms for materials, supplies, or services as follows:

If the materials or supplies are obtained from a DBE manufacturer, count 100% of the cost of the materials or supplies toward DBE participation. A manufacturer is a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract and of general character described by the specifications.

If the materials or supplies are purchased from a DBE regular dealer, count 60% of the cost of the materials or supplies toward DBE participation. A regular dealer is a firm that owns, operates, or maintains a store, warehouse or other establishment in which the materials, supplies, articles, or equipment are

bought, kept in stock, and regularly sold or leased to the public in the usual course of business.

If the materials or supplies are purchased from a DBE which is neither a manufacturer nor a regular dealer, count only the amount of fee or commission charged for assistance in the procurement of the materials or supplies or fee or transportation charges for the delivery of materials or supplies required at the job site toward DBE participation. In order to be counted, the Department must determine the fee to be reasonable and not excessive as compared to fees customarily allowed for similar services. The cost of the materials and supplies themselves will not count toward DBE goals.

The Department will not count toward DBE participation materials or services provided by a DBE who is not currently certified prior to and including the date of the Notice of Award. Additionally, the Department will not count toward DBE participation materials or services provided by a DBE who loses certification at any time after the date of the Notice of Award except in the case of a DBE whose ineligibility is cause solely by having exceeded the size standard.

No intended or actual subcontracting arrangement which is contrived to artificially inflate DBE participation is allowed. This includes, but is not limited to, DBE middlemen which serve no commercially useful function, or arrangements where a DBE is acting essentially as a broker of goods or services, but has been counted as a manufacturer, regular dealer, or subcontractor.

The Department will review and monitor projects for compliance with the bidder's intended DBE participation. Failure by the Contractor to fulfill the contract commitment constitutes a breach of contract. The Department may also investigate the form and substance of particular business arrangements between and among DBE and Contractors with regard to specific contracts. If, as a result of an investigation, the Department determines a particular business arrangement is not allowable, the dollar amount of the unallowable DBE participation will be subtracted from the Contractor's DBE participation on that project. The Contractor will be notified if the apparent DBE participation is not adequate to meet the DBE participation stated on the form DOT-289R/C. The Contractor will be directed to seek additional participation from other DBEs to meet the unallowable portion on that contract.

All Contractors and DBEs shall cooperate fully and promptly with the Department in compliance reviews, investigations, and other requests for information. If the Department determines a Contractor was a knowing and willing participant in an unallowable business arrangement, or in the event of repeated violations, falsification, or misrepresentation, the Department will impose sanctions. Sanctions may include, but are not limited to one or more of the following:

- Assessment of liquidated damages as stated in Section VII of this special provision
- Suspension of bidding privileges or debarment
- Withholding progress payments
- Securing additional DBE participation on future Federal-aid contracts sufficient to make up for the DBE participation found to be unallowable
- Referral of the matter for criminal prosecution

V. Joint Checks to DBEs

A joint check is a check issued by a prime Contractor to a DBE subcontractor and to a material supplier or another third party for items or services to be incorporated into a project. For a prime Contractor to receive DBE credit, the DBE must perform a commercially useful function and be responsible for negotiating price, determining quality and quantity, ordering materials and installing (where applicable) and paying for materials.

To ensure that the DBE is independent of the prime Contractor and in compliance with the regulation, use of joint checks will be reviewed and allowed only under following conditions:

- Issued for valid reasons only, not simply for the convenience of the prime Contractor
- Used for a specific contract or specific time frame and not long-term or open ended
- Payment is made to the DBE and not directly to the supplier
- Requested and received prior written approval from the DBE Compliance Officer.

The request must include the following:

- Name of the DBE
- The DOT contract number(s)
- The DOT PCN number(s)
- The work the DBE will be performing on each contract
- Name of the supplier(s) used by the DBE
- The specific reason(s) for issuing joint checks

The Department will review the request and verify the circumstances indicated in the request with the DBE. A copy of the request and approval will be provided to the prime Contractor and the DBE.

VI. Certification of DBE Performance and Payments

Within 30 calendar days of the date of the Acceptance of Field Work the Contractor is required to submit form DOT-289 (Certification of DBE Performance and

Payments), listing all DBEs that participated in the contract, and the total dollar amount paid (and anticipated to be paid) to each. DBE attainments are compared to commitments on form DOT-289R/C and any payments less than 90% of that commitment, without proper justification and documentation, will have liquidated damages assessed against the contract. The Contractor's final payment is not released until receipt of the form DOT-289.

Contractors are required to maintain a running tally of payments to DBEs. For reports of payments not being made in accordance with the prompt payment provision, alleged discrimination against a DBE or other similar complaint, the tally may be requested for review by the Department. The Department may perform audits of contract payments to DBEs to ensure that the amounts paid were as reported on the form DOT-289. All Contractors participating in Federal-aid contracts are expected cooperate fully and promptly with the Department in compliance reviews, investigations and other requests for information regarding payments to DBEs. Their failure to do so is grounds for appropriate sanctions or action against the Contractor.

The Department will monitor the running tally on a program basis and if reporting issues are identified, additional reporting requirements may be implemented.

The Contractor is required to report payments to DBEs twice a year from the date of the Notice to Proceed until the date of the Acceptance of Field Work. Reporting periods and deadlines for payment reporting submittals will be in accordance with the following:

Reporting Period:	**Reporting Deadline:**
October 1 to March 31	April 30
April 1 to September 30	October 31

For each reporting period, the Contractor is required to submit form DOT-289 listing all DBEs that participated in the contract, the payments to DBEs for that reporting period, and the total dollar amount paid to each DBE. For each reporting period after the Notice to Proceed, the Contractor will mark the form DOT-289 as "On-Going" when reporting payments to DBEs prior to the Date of the Acceptance of Field Work. Within 30 calendar days of the date of the Acceptance of Field Work and all DBE payments have been made, the Contractor is required to submit form DOT-289 and the Contractor will mark the form DOT-289 as "Final".

Each form DOT-289 must be provided to the Engineer by the reporting deadline stated above.

DBE payment are compared to commitment on form DOT-289R/C and any payment less than 90% of that commitment, without proper justification and documentation, will result in the Department assessing liquidated damages

against the contract. The Contractor's final payment will not be released until receipt of the form DOT-289 marked "Final".

VII. Liquidated Damages

A. If the Contractor does not meet its contract commitment documented on form DOT-289 R/C, the Department will assess liquidated damages according to the following schedule:

1. For the first $1,000 DBE deficiency, 100% of the deficiency.

2. For the next $9,000 DBE deficiency, 50% of the deficiency.

3. For the next $10,000 DBE deficiency, 25% of the deficiency.

4. For any remaining DBE deficiency in excess of $20,000, 10% of the deficiency.

This liquidated damage provision will not be applicable where actual payment to a DBE is within 90% of the commitment or where there are good and sufficient reasons, properly documented, for the deficiency such as quantity under-runs, project changes, or other unexpected occurrences.

B. If a Contractor finds it impossible, for reasons beyond its control, to meet the contract commitment on form DOT-289R/C, the Contractor may, at any time prior to completion of the project, provide a written request to the DBE Compliance Officer for a complete or partial waiver of liquidated damages. No request for a waiver will be accepted after Acceptance of Field Work has been issued.

VIII. Termination or Substitution of a DBE

The Contractor will not be allowed to terminate or substitute a DBE without the Department's prior verbal consent followed by written approval. This includes, but is not limited to, instances in where the Contractor desires to perform work originally committed to a DBE with its own forces, with an affiliated company, with a non-DBE, or with another DBE. Department approval is required when the contract contains a "specified goal" on form DOT-289R/C and the DBE to be terminated or substituted is listed as a commitment on the form DOT-289R/C.

The Department will provide written consent only if the Department agrees the Contractor has good cause to terminate the DBE listed on the form DOT-289R/C. Good cause includes the following:

- The DBE fails or refuses to execute a written contract

- The DBE fails or refuses to perform the work of the DBE subcontract in a manner consistent with normal industry standards or Department specifications unless the failure or refusal by the DBE is a result of unfair or discriminatory actions by the Contractor
- The DBE fails or refuses to meet the Contractor's reasonable nondiscriminatory bond requirements
- The DBE becomes bankrupt, insolvent, or exhibits credit unworthiness
- The DBE in ineligible to work on public works projects because of suspension and debarment proceedings pursuant to 2 CFR Parts 180, 215, and 1,200 or applicable state law
- The Department has determined that the DBE is not a responsible Contractor
- The DBE voluntarily withdraws from the project and provided the Department with a written notice of withdrawal
- The DBE is found to be ineligible to receive DBE credit for the type of work required
- A DBE owner dies or becomes disabled with the result that the DBE is unable to complete its work on the contract
- Other documented good cause that the Department determines to substantiate the termination of the DBE.

Good cause does not exist if the Contractor seeks to terminate a DBE so the Contractor can self-perform the work for which the DBE was committed, or so the Contractor can substitute another DBE or non-DBE Contractor after the contract award.

Before submitting a request to terminate or substitute a DBE to the Department, the Contractor must first provide written notice to the DBE, with a copy of the notice to the DBE Compliance Officer, of the Contractor's intent to request to terminate or substitute, and the reason for the request.

The Contractor must give the DBE 5 calendar days to respond to the notice and advise the Department and the Contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why the Department should not approve the Contractor's action. If required in a particular case as a matter of public necessity (e.g. safety), the Department may provide a response period shorter than 5 calendar days.

When a DBE is terminated or fails to complete its work on the contract for any reason, the Contractor must make good faith efforts to replace the committed DBE with another DBE. The Contractor must make efforts to find another DBE to perform the same amount of work under the contract as the DBE that was terminated. The letter to the Department requesting termination or substitution must include the name of the DBE and dollar amount of the replacement DBE. If the Contractor is unable to find another DBE, the Contractor must provide the

names of the DBEs it contacted and reason why they were unable to use those DBEs.

If the Contractor does not utilize or pay DBEs as required, liquidated damages will be assessed as specified in Section VII of this special provision. In addition, if the Contractor is found to have knowingly and willingly attempted to circumvent the DBE contract provisions, the Department will not make payment for the work that was originally committed to a DBE and the Department may impose sanctions referred to in Section IV of this special provision.

The Contractor does not need Department approval to terminate or substitute a DBE under the following circumstances:

- The DBE is being used on a contact with a “Specified Goal” however the DBE was not listed as a DBE commitment on form DOT-289R/C.
- The DBE was listed as an anticipated utilization on a “Not Specified” DBE goal contract on form DOT-289R/N.

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SPECIAL PROVISION FOR EEO AFFIRMATIVE ACTION REQUIREMENTS ON FEDERAL AND FEDERAL-AID CONSTRUCTION CONTRACTS

FEBRUARY 5, 2024

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1. The Offeror's or Bidder's attention is called to the “Equal Opportunity Clause” and the “Standard Federal Equal Employment Specifications” set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

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Aurora	0.8%	Fall River	7.9%	Marshall	1.3%
Beadle	0.8%	Faulk	1.3%	Meade	3.4%
Bennett	7.9%	Grant	1.3%	Mellette	7.9%
Bon Homme	1.2%	Gregory	0.8%	Miner	0.8%
Brookings	0.8%	Haakon	7.9%	Minnehaha	1.2%
Brown	1.3%	Hamlin	1.3%	Moody	0.8%
Brule	0.8%	Hand	0.8%	Oglala Lakota	7.9%
Buffalo	7.9%	Hanson	0.8%	Pennington	3.4%
Butte	7.9%	Harding	7.9%	Perkins	7.9%
Campbell	7.9%	Hughes	7.9%	Potter	7.9%
Charles Mix	0.8%	Hutchinson	0.8%	Roberts	1.3%
Clark	1.3%	Hyde	7.9%	Sanborn	0.8%
Clay	1.2%	Jackson	7.9%	Spink	1.3%
Codington	1.3%	Jerauld	0.8%	Stanley	7.9%
Corson	7.9%	Jones	7.9%	Sully	7.9%
Custer	7.9%	Kingsbury	0.8%	Todd	7.9%
Davison	0.8%	Lake	0.8%	Tripp	7.9%
Day	1.3%	Lawrence	7.9%	Turner	0.8%
Deuel	1.3%	Lincoln	0.8%	Union	1.2%
Dewey	7.9%	Lyman	7.9%	Walworth	7.9%
Douglas	0.8%	McCook	0.8%	ankton	1.2%
Edmunds	1.3%	McPherson	1.3%	iebach	7.9%

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Statewide 6.9%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this

second area, the contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR part 60–4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60–4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR part 60–4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this Notice, and in the contract resulting from this solicitation, the “covered area” is shown by county designation on the Title Sheet of the plans.

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1. As used in these specifications:

a. “Covered area” means the geographical area described in the solicitation from which this contract resulted;

b. “Director” means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

c. “Employer identification number” means the Federal Social Security number used on the Employer’s Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

d. “Minority” includes:

(i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

(iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of 10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60–4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7 a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall

document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

D. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR part 60–3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the

Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, sexual orientation, gender identity, or national origin.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60–4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION FOR
REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA 1273 (OCTOBER 23, 2023)

OCTOBER 18, 2023

The following are amendments to the above contract provisions.

Section I.4.

Delete this section and replace with the following:

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a Federal-aid construction project unless it is labor performed by convicts who are on parole, supervised release, or probation.

Section IV.

Delete the first three sentences of the first paragraph and replace with the following:

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway and to all portions of Transportation Alternatives Program (TAP) funded projects.

Section IV.3.b.(1)

Delete this section and replace with the following:

The Contractor and each related subcontractor must submit weekly, for each week in which any contract work is performed, an electronic certified weekly payroll report. The Contractor is responsible for the submission of certified payroll reports by all subcontractors. The payroll report must be submitted electronically to the Elation System website. The Contractor must submit a legally valid electronic signature. The Elation System website can be accessed by logging onto the State of South Dakota's single sign-on website at https://mysd.sd.gov/ or can also be accessed at https://elationsys.com/. First time users will need to use the Promotion Code SDDOT-19. The payroll report must be submitted within fourteen (14) calendar days after the end of the workweek.

Section IV.3.b.(2)

Delete the third sentence.

Section IV.3.b.(3)

Delete the first paragraph and replace with the following:

Each certified weekly payroll report must include the most recent South Dakota Department of Transportation (SDDOT) Statement of Compliance Form, signed by the Contractor or related subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract. The Instructions for the SDDOT Statement of Compliance Form are found at https://dot.sd.gov/doing-business/contractors/labor-compliance/certified-payrolls-let-after-6/5/19. The SDDOT will not accept any payroll report which does not include the most recent SDDOT Statement of Compliance Form. The SDDOT Statement of Compliance Form must certify the following:

Section IV.3.b.(4)

Delete this paragraph and replace with the following:

The weekly submission of a properly executed SDDOT Statement of Compliance Form shall satisfy the requirement for submission of the "Statement of Compliance Form" required by paragraph 3.b.(3) of this section.

Section IV.4.a.(1)

Delete the first sentence and replace with the following:

Apprentices will be permitted to work at less than the predetermined rate for the work they perform, but not less than the Common Laborer wage rate contained in the bid documents, when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship (OA), or with a State Apprenticeship Agency recognized by the OA.

* * * * *

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. General
II. Nondiscrimination
III. Non-segregated Facilities
IV. Davis-Bacon and Related Act Provisions
V. Contract Work Hours and Safety Standards Act Provisions
VI. Subletting or Assigning the Contract
VII. Safety: Accident Prevention
VIII. False Statements Concerning Highway Projects
IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
X. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
XI. Certification Regarding Use of Contract Funds for Lobbying
XII. Use of United States-Flag Vessels:

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). 23 CFR 633.102(e).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider. 23 CFR 633.102(e).

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services) in accordance with 23 CFR 633.102. The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract). 23 CFR 633.102(b).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract. 23 CFR 633.102(d).

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR Part 230, Subpart A, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal Employment Opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (*see* 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140, shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract. 23 CFR 230.409 (g)(4) & (5).

b. The contractor will accept as its operating policy the following statement:

> "It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or are substantially involved in such action, will be made fully cognizant of and will implement the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action

within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs (i.e., apprenticeship and on-the-job training programs for the geographical area of contract performance). In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors, suppliers, and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurances Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:
(1) Withholding monthly progress payments;
(2) Assessing sanctions;
(3) Liquidated damages; and/or
(4) Disqualifying the contractor from future bidding as non-responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women.

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of more than $10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, the contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location under the contractor's control where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages (29 CFR 5.5)

a. *Wage rates and fringe benefits.* All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of basic hourly wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. As provided in paragraphs (d) and (e) of 29 CFR 5.5, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act (40 U.S.C. 3141(2)(B)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.e. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph 4. of this section. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided,* That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph 1.c. of this section) and the Davis-Bacon poster (WH–1321) must be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. *Frequently recurring classifications.* (1) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in 29 CFR part 1, a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph 1.c. of this section, provided that:

(i) The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;

(ii) The classification is used in the area by the construction industry; and

(iii) The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.

(2) The Administrator will establish wage rates for such classifications in accordance with paragraph 1.c.(1)(iii) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

c. *Conformance.* (1) The contracting officer must require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is used in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

(3) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the contracting officer by email to *DBAconformance@dol.gov*. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30–day period that additional time is necessary.

(4) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer will, by email to *DBAconformance@dol.gov*, refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30–day period that additional time is necessary.

(5) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division under paragraphs 1.c.(3) and (4) of this section. The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 1.c.(3) or (4) of this section must be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

d. *Fringe benefits not expressed as an hourly rate.* Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

e. *Unfunded plans.* If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided,* That the Secretary of Labor has found, upon the written request of the contractor, in accordance with the criteria set forth in § 5.28, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

f. *Interest.* In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

2. Withholding (29 CFR 5.5)

a. *Withholding requirements.* The contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in this section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph 3.d. of this section, the contracting agency may on its own initiative and after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with paragraph

2.a. of this section or Section V, paragraph 3.a., or both, over claims to those funds by:

(1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;

(2) A contracting agency for its reprocurement costs;

(3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;

(4) A contractor's assignee(s);

(5) A contractor's successor(s); or

(6) A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901–3907.

3. Records and certified payrolls (29 CFR 5.5)

a. *Basic record requirements* (1) *Length of record retention.* All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.

(2) *Information required.* Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

(3) *Additional records relating to fringe benefits.* Whenever the Secretary of Labor has found under paragraph 1.e. of this section that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act, the contractor must maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

(4) *Additional records relating to apprenticeship.* Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

b. *Certified payroll requirements* (1) *Frequency and method of submission.* The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to the contracting agency. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

(2) *Information required.* The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph 3.a.(2) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (*e.g.,* the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH–347 or in any other format desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division website at *https://www.dol.gov/sites/dolgov/files/WHD/legacy/files/wh347/.pdf* or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the contracting agency.

(3) *Statement of Compliance.* Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

(i) That the certified payroll for the payroll period contains the information required to be provided under paragraph 3.b. of this section, the appropriate information and basic records are being maintained under paragraph 3.a. of this section, and such information and records are correct and complete;

(ii) That each laborer or mechanic (including each helper and apprentice) working on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR part 3; and

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.

(4) *Use of Optional Form WH–347.* The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 will satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(3) of this section.

(5) *Signature.* The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.

(6) *Falsification.* The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 3729.

(7) *Length of certified payroll retention.* The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

c. *Contracts, subcontracts, and related documents.* The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

d. *Required disclosures and access* (1) *Required record disclosures and access to workers.* The contractor or subcontractor must make the records required under paragraphs 3.a. through 3.c. of this section, and any other documents that the contracting agency, the State DOT, the FHWA, or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

(2) *Sanctions for non-compliance with records and worker access requirements.* If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under 29 CFR part 6 any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

(3) *Required information disclosures.* Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address of each covered worker, and must provide them upon request to the contracting agency, the State DOT, the FHWA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

4. Apprentices and equal employment opportunity (29 CFR 5.5)

a. *Apprentices* (1) *Rate of pay.* Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) *Fringe benefits.* Apprentices must be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringe benefits must be paid in accordance with that determination.

(3) *Apprenticeship ratio.* The allowable ratio of apprentices to journeyworkers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph 4.a.(4) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph 4.a.(1) of this section, must be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(4) *Reciprocity of ratios and wage rates.* Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

b. *Equal employment opportunity.* The use of apprentices and journeyworkers under this part must be in conformity with

the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

c. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. 23 CFR 230.111(e)(2). The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeyworkers shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract as provided in 29 CFR 5.5.

6. Subcontracts. The contractor or subcontractor must insert FHWA-1273 in any subcontracts, along with the applicable wage determination(s) and such other clauses or contract modifications as the contracting agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate. 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility. a. By entering into this contract, the contractor certifies that neither it nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of 40 U.S.C. 3144(b) or § 5.12(a).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of 40 U.S.C. 3144(b) or § 5.12(a).

c. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, 18 U.S.C. 1001.

11. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, this part, or 29 CFR part 1 or 3;

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or 29 CFR part 1 or 3;

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or 29 CFR part 1 or 3; or

d. Informing any other person about their rights under the DBA, Related Acts, this part, or 29 CFR part 1 or 3.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), the following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchpersons and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek. 29 CFR 5.5.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph 1. of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or

mechanic, including watchpersons and guards, employed in violation of the clause set forth in paragraph 1. of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1. of this section.

* $31 as of January 15, 2023 (See 88 FR 88 FR 2210) as may be adjusted annually by the Department of Labor, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990.

3. Withholding for unpaid wages and liquidated damages

a. *Withholding process.* The FHWA or the contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this section on this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with Section IV paragraph 2.a. or paragraph 3.a. of this section, or both, over claims to those funds by:

(1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;

(2) A contracting agency for its reprocurement costs;

(3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;

(4) A contractor's assignee(s);

(5) A contractor's successor(s); or

(6) A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901–3907.

4. Subcontracts. The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs 1. through 5. of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1. through 5. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

5. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or

d. Informing any other person about their rights under CWHSSA or this part.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” in paragraph 1 of Section VI refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. Pursuant to 23 CFR 635.116(c), the contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. 23 CFR 635.108.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR Part 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704). 29 CFR 1926.10.

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR Part 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 11, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of $150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.327.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.327.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200. 2 CFR 180.220 and 1200.220.

1**. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200. “First Tier Covered Transactions” refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction. 2 CFR 180.330.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold. 2 CFR 180.220 and 180.300.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (https://www.sam.gov/). 2 CFR 180.300, 180.320, and 180.325.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default. 2 CFR 180.325.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335;.

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property, 2 CFR 180.800;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

* * * * *

3. **Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders, and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances. 2 CFR 180.365.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated. 2 CFR 1200.220 and 1200.332.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold. 2 CFR 180.220 and 1200.220.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (https://www.sam.gov/), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily

excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment. 2 CFR 180.325.

* * * * *

4. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

a. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(1) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(2) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(3) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

b. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000. 49 CFR Part 20, App. A.

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

XII. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, ‘on-board’ commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B)
This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION REGARDING
MINIMUM WAGE ON FEDERAL-AID PROJECTS

OCTOBER 24, 2019

This proposal contains a copy of the most recent United States Department of Labor (USDOL) Davis-Bacon Act Wage Decision.

The Contractor and each related subcontractor will pay their respective employees not less than the USDOL minimum wage for each work classification an employee actually performs at the site of the work.

The Contractor and each related subcontractor must submit weekly, for each week in which any contract work is performed, an electronic certified weekly payroll report. The payroll report must be submitted electronically to the Elation System website. The Elation System website can be accessed by logging onto the State of South Dakota's single sign-on website at https://mysd.sd.gov/ or can also be accessed at https://elationsys.com/. First time users will need to use the Promotion Code SDDOT-19. The payroll report must be submitted within fourteen (14) calendar days after the end of the workweek. The payroll reports submitted shall set out accurately and completely all the information required to be maintained under 29 C.F.R. 5.5(a)(3)(i). Weekly transmittals must include an individually identifying number for each employee, such as the last four digits of the employee's social security number, but these weekly transmittals must not include full social security numbers or home addresses. The Contractor is responsible for the submission of certified payroll reports by all subcontractors.

Each certified weekly payroll report must include the most recent South Dakota Department of Transportation (SDDOT) Statement of Compliance Form, signed by the Contractor or related subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract. The Instructions for the SDDOT Statement of Compliance Form are found at https://dot.sd.gov/doing-business/contractors/labor-compliance/certified-payrolls-let-after-6/5/19. The SDDOT will not accept any payroll report which does not include the most recent SDDOT Statement of Compliance Form.

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Wage and Hour Division
U.S. Department of Labor (DOL)
200 Constitution Avenue, N.W.
Washington, DC 20210

Davis-Bacon Act Wage Decisions
State: South Dakota
Construction Types: Heavy and Highway
Counties: South Dakota Statewide

Agency: U.S. DOL
Wage Decision Number: **SD20230032 SD1**
Counties: SD Statewide
Wage Decision Date: **03/10/2023 (Mod-0)**

***SUSD2023-001 01-11-2023**

	Rates	Fringes
LABORERS		
GROUP GL1		
Air Tool Operator; Common Laborer; Landscape Worker; Flagger; Pilot Car Driver; Trucks under 26,000 GVW; Blue-top Checker; Materials Checker	**22.38**	**0.00**
GROUP GL2		
Mechanic Tender (Helper); Pipe Layer (except culvert); Form Builder Tender; Special Surface Finish Applicator; Striping	**23.16**	**0.00**
GROUP GL3		
Asphalt Plant Tender; Pile Driver Leadsman; Form Setter; Oiler/Greaser	**24.41**	**0.00**
GROUP GL5		
Carpenter; Form Builder	**31.94**	**0.00**
GROUP GL6		
Concrete Finisher; Painter; Grade Checker	**26.45**	**0.00**
POWER EQUIPMENT OPERATORS		
GROUP G01		
Concrete Paving Cure Machine; Concrete Paving Joint Sealer; Conveyor; Tractor (farm type with attachments); Self Propelled Broom; Concrete Routing Machine; Paver Feeder; Pugmill; Skid Steer	**24.57**	**0.00**
GROUP G02		
Bull Dozer 80 HP or less; Front End Loader 1.25 CY or less; Self Propelled Roller (except Hot Mix); Sheepsfoot/50Ton Pneumatic Roller; Pneumatic Tired Tractor or Crawler (includes Water Wagon and Power Spray units); Wagon Drill; Air Trac; Truck Type Auger; Concrete Paving Saw	**24.68**	**0.00**
GROUP G03		
Asphalt Distributor; Bull Dozer over 80 HP; Concrete Paving Finishing Machine; Backhoes/ Excavators 20 tons or less; Crusher (may include internal screening plant); Front End Loader over 1.25 CY; Rough Motor Grader; Self Propelled Hot Mix Roller; Push Tractor; Euclid or Dumpster; Material Spreader; Rumble Strip Machine	**26.07**	**0.00**
GROUP G04		
Asphalt Paving Machine Screed; Asphalt Paving Machine; Cranes/Derricks/Draglines/Pile Drivers/Shovels 30 to 50 tons; Backhoes/Excavators 21 to 40 tons; Maintenance Mechanic; Scrapers; Concrete Pump Truck	**27.18**	**0.00**
GROUP G05		
Asphalt Plant; Concrete Batch Plant; Backhoes/Excavators over 40 Tons; Cranes/ Derricks/Draglines/Pile Drivers/Shovels over 50 tons; Heavy Duty Mechanic; Finish Motor Grader; Automatic Fine Grader; Milling Machine; Bridge Welder	**30.01**	**0.00**
TRUCK DRIVERS		
GROUP GT1		
Tandem Truck without trailer or pup; Single Axle Truck over 26,000 GVW with Trailer	**24.52**	**0.00**
GROUP GT2		
Semi-Tractor and Trailer; Tandem Truck with Pup	**25.88**	**4.28**
ELECTRICIANS		
GROUP E01		
Electrician	**29.78**	**5.04**

WELDERS – Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award, pursuant to 29 CFR 5.5(a)(1)(ii); contractors are responsible for requesting SDDOT to secure necessary additional work classifications and rates.

*Classifications listed under an "SU" identifier were derived from survey data and the published rate is the weighted average rate of all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates.

Survey wage rates are not updated and will remain in effect until a new survey is conducted.

A COPY OF THIS DOCUMENT, COLORED TAN, MUST BE CONSPICUOUSLY POSTED AT THE PROJECT SITE

Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Davis-Bacon Act Wage Decisions
State: South Dakota
Construction Types: Heavy and Highway
Counties: South Dakota Statewide

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In the listing above, the "SU" identifier indicates the rates were derived from survey data. As these weighted average rates include all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of the survey on which these classifications and rates are based. The next number, 007 in this example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

For SDDOT Defined Work Classifications, please visit: https://dot.sd.gov/doing-business/contractors/labor-compliance

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WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- an existing published wage determination
- a survey underlying a wage determination
- a Wage and Hour Division letter setting forth a position on a wage determination matter
- a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
SUPPLEMENTAL SPECIFICATIONS TO
2015 STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES

SEPTEMBER 7, 2022

The Supplemental Specifications dated September 7, 2022 are in effect for and made a part of this contract.

The Supplemental Specifications may be obtained from the Department website or the local Area Office or by contacting the Operations Support Office.

Department Website:
https://dot.sd.gov/doing-business/contractors/standard-specifications/2015-standard-specifications

Operations Support:
605-773-3571

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STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
PRICE SCHEDULE FOR MISCELLANEOUS ITEMS

DECEMBER 6, 2023

The following unit bid prices have been established by the South Dakota Department of Transportation Commission.

These prices will be pre-entered in the bidding package for each project or will establish a standard price to be used whenever no project contract unit price exists for that item.

Each unit price listed is considered full compensation for the cost of labor, material, and equipment to provide the item of work and/or material, complete in place, including (but not limited to) royalty, waste of unsuitable materials, equipment rental, overhead, profit, and incidentals.

Items specified in this document may be paid for on progressive estimates without the benefit of a prior approved Construction Change Order.

Specification Section Number	Specification Section Name	Item Name	Price per Item
5.8	Construction Stakes, Lines, and Grades	Engineer Directed Surveying/Staking	$175.00/hour
7.7	Public Convenience and Safety	Water for Dust Control	$35.00/M.Gal
7.7	Public Convenience and Safety	Dust Control Chlorides	$0.70/lb
9.3	Payment for extra haul of Materials	Extra Haul	$0.25/ton mile (Truck) or $0.10/ cubic yard station (Scraper)
120.5 A.5.	Roadway and Drainage Exc. & Emb.	Unclassified Excavation, Digouts	$15.00/cu.yd.
120.5 H.	Roadway and Drainage Exc. & Emb.	Extra Haul	$0.25/ton mile (Truck) or $0.10/cubic yard station (Scraper)
120.5 I.	Roadway and Drainage Exc. & Emb.	Water for Embankment	$35.00/M.Gal
421.5	Undercutting Pipe & Plate Pipe	Undercutting Culverts	$20.00/cu.yd.

510.5 D.	Timber, Prestressed, and Steel Piles	Timber Pile Splice	$850.00/each
		Steel Pile Splices (*All Weights)	Splice made before either of the pieces has been driven.
		8 HP*	$200.00/each
		10 HP*	$250.00/each
		12 HP*	$275.00/each
		14 HP*	$300.00/each
		Steel Pile Splices (*All Weights)	Splice made after one of the pieces has been driven.
		8 HP*	$400.00/each
		10 HP*	$525.00/each
		12 HP*	$650.00/each
		14 HP*	$750.00/each
510.5 E.	Timber, Prestressed, and Steel Piles	Pile Shoes (Timber Pile)	$190.00/each
510.5 H.	Timber, Prestressed, and Steel Piles	Pile Tip Reinforcement (Steel Pile)	
		10” HP Tip Reinforced	$200.00/each
		12” HP Tip Reinforced	$225.00/each
		14” HP Tip Reinforced	$275.00/each
601.5	Haul Roads	Granular Material	$28.00/ton
601.5	Haul Roads	Asphalt Concrete (including asphalt)	$160.00/ton
601.5	Haul Roads	Cover Aggregate	$55.00/ton
601.5	Haul Roads	Asphalt for Prime	$1200.00/ton
601.5	Haul Roads	Asphalt (Tack, Flush & Surface Treatment)	$800.00/ton
601.5	Haul Roads	Water	$35.00/M.Gal
601.5	Haul Roads	Dust Control Chlorides	$0.70/lb
634.5	Temporary Traffic Control	Flagging	$36.03/hour
634.5	Temporary Traffic Control	Pilot Car	$52.75/hour

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STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
REGARDING
STORM WATER DISCHARGES
TO WATERS OF THE STATE

MAY 8, 2018

In compliance with the provisions of the South Dakota Water Pollution Control Act and the Administrative Rules of South Dakota (ARSD), Article 74:52, the State of South Dakota has been issued Permit No. SDR10#### "GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES". This permit authorizes the discharge of storm water in accordance with the conditions and requirements set forth in the permit.

The Contractor, by signing the CONTRACTOR AUTHORIZATION FORM and submitting a bid or proposal, certifies the following:

> "I certify under penalty of law that I understand and will comply with the terms and conditions of the Surface Water Discharge General Permit for Storm Water Discharges Associated with Construction Activities for the project identified above."

A copy of the full version of the General Permit for Storm Water Discharges Associated with Construction Activities, dated 04/01/2018, must be posted on the job site. The General Permit for Storm Water Discharges Associated with Construction Activities is available for downloading and printing from the SD DENR website:

https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/stormwater/StormWaterConstruction.aspx

The Contractor may also obtain a printed copy of the permit from the SDDOT Project Development office or from the SDDOT Area Office assigned to this project.

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